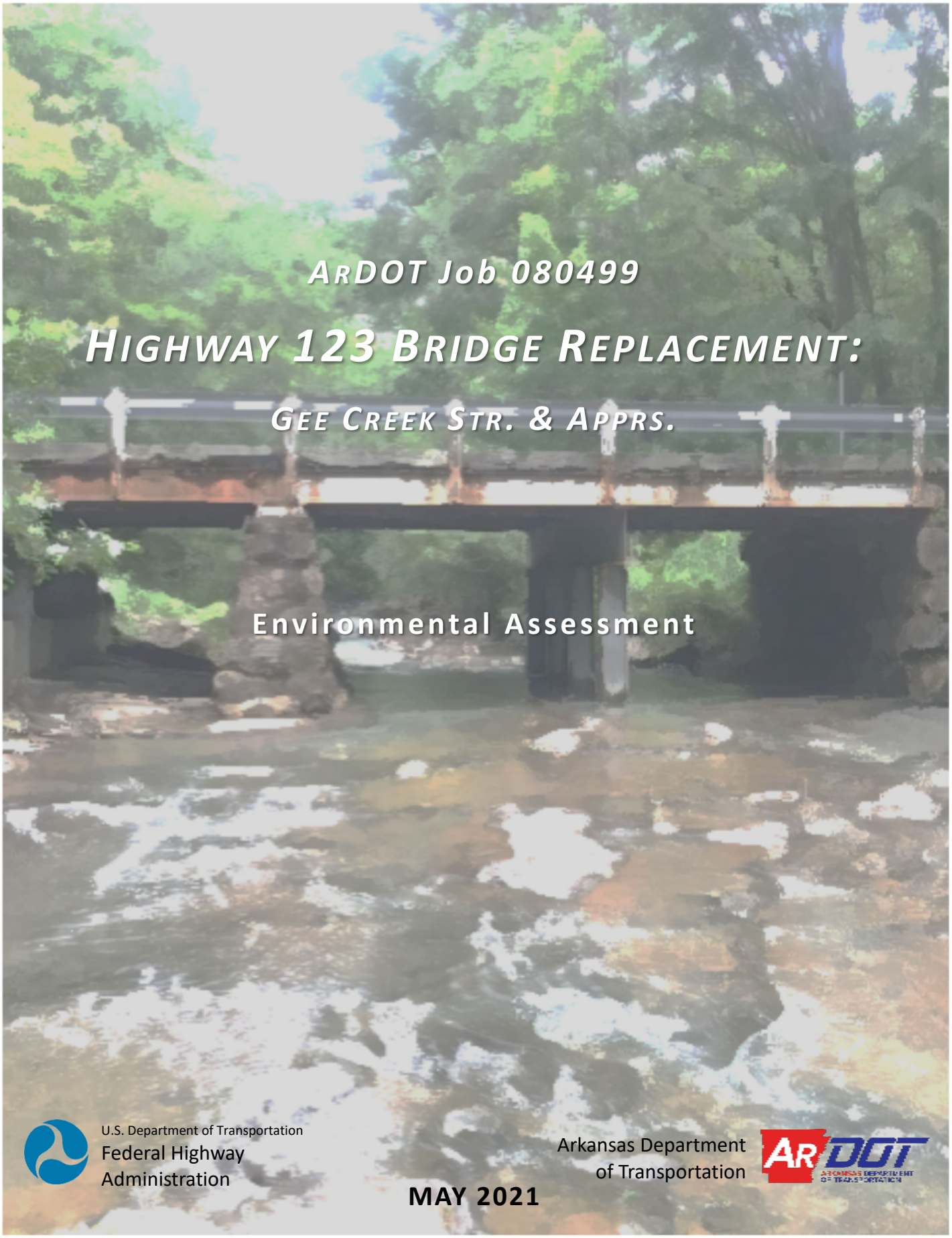

ARDOT Job 080499

HIGHWAY 123 BRIDGE REPLACEMENT:

GEE CREEK STR. & APPRS.

Environmental Assessment

U.S. Department of Transportation
Federal Highway
Administration

Arkansas Department
of Transportation

MAY 2021

Gee Creek Str. & Apprs. (S)

F.A.P. Number STP-0036(18)

Environmental Assessment

Randal Looney
Environmental Coordinator
Federal Highway Administration

May 26, 2021
Date of Approval

Submitted pursuant to:

The National Environmental Policy Act (NEPA)
42 U.S.C. §4322(2)(c) and 23 C.F.R. §771

Submitted by:

FEDERAL HIGHWAY ADMINISTRATION

and

ARKANSAS DEPARTMENT OF TRANSPORTATION

in cooperation with

U.S. FOREST SERVICE, OZARK-ST. FRANCIS NATIONAL FORESTS

U.S. Department of Transportation
Federal Highway Administration

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In compliance with the National Environmental Policy Act, this Environmental Assessment (EA) describes a Build Alternative to replace the Highway 123 bridge over Gee Creek and the No Action Alternative. No significant adverse environmental effects were associated with either alternative.

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This EA is also available for review online at:

http://www.ardot.gov/

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Chapter 1: Purpose & Need

What's in Chapter 1?

Chapter 1 explains the purpose of the project, why the Highway 123 bridge needs to be replaced, and who is leading the project.

1.1 What is the Highway 123 bridge replacement project?

The Arkansas Department of Transportation (ARDOT) is proposing to replace the Highway 123 bridge over Gee Creek, bridge number M1864 (Figure 1), located approximately 7.4 miles south of Highway 7 in Johnson County.

Bridge M1864: Highway 123 over Gee Creek

Figure 1

Project Location

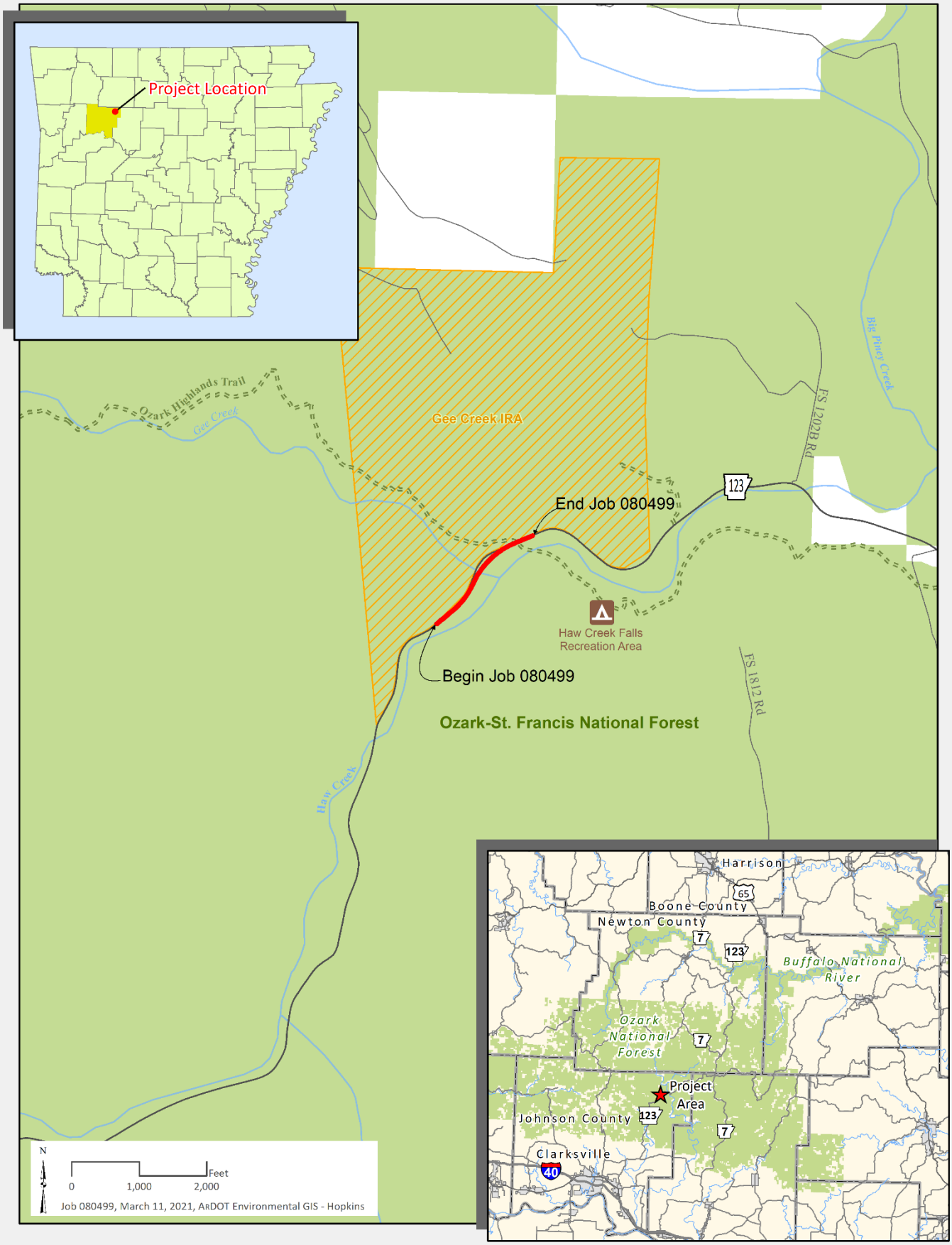

Figure 2

1.2 Why does the Highway 123 bridge over Gee Creek need to be replaced?

What is a major collector?

Collector highways, such as Highway 123, generally serve travel within counties and of shorter distances than arterials, such as Highway 7. Major collectors are distinguished from minor collectors by their links to business and industrial districts, major cities, or roads of higher classification, such as Highway 7.

Highway 123

Highway 123 is functionally classified as a major collector and connects Interstate 40 in Clarksville to Highway 65 south of Harrison. It crosses the Ozark-St. Francis National Forests, connecting several U.S. Forest Service (USFS) recreational areas and campgrounds, the Buffalo National River, the Gene Rush Buffalo River Management Area, and several state highways including an arterial route, Highway 7.

In the project area (Figure 2), Highway 123 winds through the Ozark-St. Francis National Forests, providing recreational access to Haw Creek Falls Recreation Area and Campground and serving as the local link to arterial highways, primarily for logging trucks. In the project area, the 2018 average daily traffic was approximately 90 vehicles per day, projected to 100 vehicles per day by 2038. Trucks account for approximately 2% of the total traffic.

In the project area, Highway 123 consists of two 10' wide travel lanes with 2' wide paved shoulders. These narrow shoulders do not meet current design standards and potentially pose additional safety concerns.

Gee Creek Bridge

The subject bridge over Gee Creek was originally built in 1938. The bridge was constructed with multiple steel I-beam stringers on one rock masonry pier, two more recent metal bents, and two masonry abutments with wing walls. The deck is asphalt over corrugated metal decking.

The existing bridge has had numerous interim reinforcements added in the past to remove weight restrictions to accommodate heavy loads for highway bridge work further down Highway 123 and to extend the life of the bridge until it could be replaced. The bridge would continue to need more extensive repairs as the condition deteriorates if it is not replaced. The inspection report for the bridge lists the condition of the superstructure as 4 (poor, indicative of advanced deterioration) and deck and substructure as 5 (fair, indicative of minor section loss).

1.3 What is the purpose of this project?

The purpose of this project is to correct the existing structural deficiencies with the Highway 123 bridge over Gee Creek that would otherwise result in escalating maintenance costs and the eventual closure of Highway 123.

1.4 What is the purpose of this Environmental Assessment?

This Environmental Assessment (EA) is being prepared under the National Environmental Policy Act (NEPA) to:

- Evaluate the environmental effects of replacing the Highway 123 bridge over Gee Creek.
- Inform and receive feedback from the public and decision makers about the environmental effects of the project alternatives.
- Determine whether effects are significant and require an Environmental Impact Statement or if the project effects can be sufficiently documented through an EA and Finding of No Significant Impacts (FONSI).

What is NEPA?

The National Environmental Policy Act of 1969 (NEPA) requires Federal agencies to consider the potential environmental consequences of their actions, document the analysis, and provide a public involvement process prior to project implementation. Federal agencies are subject to NEPA as part of their decision making process as part of their own projects, by providing funding to other organizations or agencies, through regulatory or permitting processes, or through the involvement of their resources or property.

1.5 Who is leading this project?

This project is led by a partnership between the Federal Highway Administration (FHWA) and ARDOT. The FHWA is involved because it is funding a portion of the project and has the primary responsibility for the content and accuracy of this NEPA document.

The project is also being funded through state funds allocated to ARDOT. ARDOT is responsible for administering and maintaining the state highway system, which includes Highway 123 and associated structures. For these reasons, ARDOT is a co-lead agency with the FHWA.

The USFS, specifically the Ozark-St. Francis National Forests, was invited to be a cooperating agency in the NEPA process. The proposed project involves Ozark-St. Francis National Forests land, including the protected Gee Creek Inventoried Roadless Area (IRA). See Section 3.4 of this EA for more information on USFS and IRA impacts and Appendix A for USFS correspondence.

What are significant impacts?

NEPA regulations do not provide specific thresholds to determine if project impacts are considered significant, but they do discuss the process that should be used to evaluate impacts.

Consideration is given both to context, where the significance of impacts varies with the setting of the proposed action, and intensity, the severity of the impacts.

Chapter 2: Development of Alternatives

What's in Chapter 2?

Chapter 2 identifies the project limits and briefly describes how the alternatives were developed for this EA.

2.1 What are the project limits and how were they chosen?

The project limits include the area required to construct the new structure and approaches and remove the existing structure and approaches. Building the replacement structure on new alignment adjacent to the existing structure allows for traffic to be maintained on the existing bridge during construction. If Highway 123 were closed, the shortest official detour using state highways would be approximately 60 miles in length (Figure 3).

Official Detour

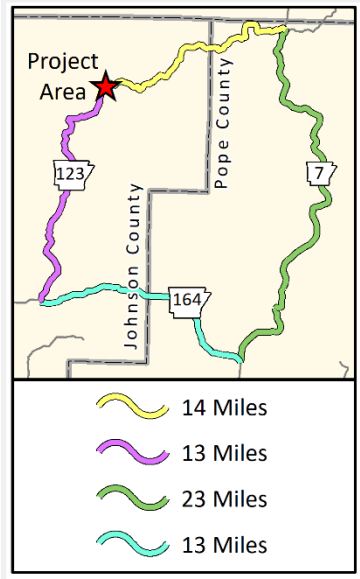

Figure 3

2.2 What alternatives were developed & evaluated in this EA?

Two alternatives were considered for this project: the No Action Alternative and the Build Alternative.

No Action Alternative

The No Action Alternative would provide only routine maintenance for the Highway 123 bridge over Gee Creek. By taking no action other than routine maintenance, the No Action Alternative would not address the structural deficiencies associated with the bridge, requiring increasing maintenance to maintain the bridge for even lighter traffic and eventual closure of the bridge to all vehicular traffic.

Why would you consider an alternative that does nothing?

NEPA requires decision makers to consider a "no action" alternative in all NEPA studies. This alternative usually does not meet the project's purpose and need but is used to compare the beneficial and adverse impacts of "action" alternatives and determine their significance.

Build Alternative

The Build Alternative would replace the existing bridge with a three-sided/bottomless culvert immediately downstream of the existing structure. The new culvert would likely be constructed of precast concrete with three spans/barrels, with each barrel approximately 16'x9'. An approved alternate structure design or type could be considered for constructability reasons or to save construction costs.

Highway 123 would have two 11' wide paved travel lanes, and 4' shoulders with 2' paved and 2' unpaved. The proposed alignment for the Build Alternative is shown in Figure 4.

Build Alternative: Proposed Alignment

Figure 4

2.3 How were these alternatives developed?

Initially, a standard four-sided reinforced concrete box culvert was proposed to replace the existing bridge. The U.S. Fish and Wildlife Service (USFWS) and USFS expressed concerns regarding the restriction of aquatic species passage typically associated with four-sided structures, so a bottomless structure will be used instead. Gee Creek also has a naturally-occurring exposed bedrock streambed conducive to the construction of the foundations for bottomless structures.

2.4 How has the public been involved?

The ARDOT and the USFS provided the opportunity for early public input into the development of the proposed project through the USFS scoping process. Letters were sent to adjacent property owners and the Ozark-St. Francis National Forests citizen contact list. No comments were received.

2.5 How have tribal governments been involved?

Section 106 of the National Historic Preservation Act requires federal agencies to consult with tribes where projects could affect tribal areas with historical or cultural significance. The FHWA initiated tribal coordination during the scoping process with the tribes that have an active cultural interest in the area.

The Tribal Historic Preservation Officers were given the opportunity to comment on the proposed project. No objections to the proposed project were received.

Which tribal governments were contacted?

- Absentee Shawnee Tribe
- Caddo Nation
- Cherokee Nation of Oklahoma
- Choctaw Nation
- Eastern Shawnee Tribe of Oklahoma
- Muscogee (Creek) Nation
- The Osage Nation
- Quapaw Tribe of Oklahoma
- Shawnee Tribe
- Thlopthlocco Tribal Town
- United Keetowah Band of Cherokee Indians
- Wichita and Affiliated Tribes

2.6 Which of these alternatives will be considered?

Both alternatives identified in this chapter are reasonable under NEPA regulations. The No Action Alternative does not meet the project's purpose and need, but will be considered in the remainder of the EA as a baseline for comparison of project impacts. The Build Alternative meets the project's purpose and need and its impacts will be analyzed in the remainder of this EA.

Chapter 3: Project Effects

What's in Chapter 3?

Chapter 3 identifies permanent and construction impacts that are expected as a result of the proposed project. Only elements that would be affected by the project are discussed. The impact areas discussed in Chapter 3 are summarized in Table 1, found in Chapter 4.

3.1 How would the project affect traffic and safety?

How would traffic patterns and volumes on Highway 123 and intersecting roads change with the project?

Normal traffic patterns would not change with the construction of the Build Alternative or the No Action Alternative. Traffic would be maintained on the existing structure during construction of the Build Alternative, although short-term lane closures may be required as the new approaches are tied into existing Highway 123 and local/USFS roads.

The No Action Alternative does not involve any improvements to the Highway 123 bridge over Gee Creek other than routine maintenance. As the structural deterioration worsens, the bridge would have weight restrictions reintroduced and eventually have to be closed to traffic, resulting in the detour of all vehicles (Figure 3).

How would the project affect safety?

The Build Alternative would prevent safety concerns associated with the No Action Alternative: the collapse of a failing bridge or the severance of emergency access on Highway 123 if the bridge were closed to all traffic.

3.2 How much would the proposed project cost?

Using 2019 dollars, the Build Alternative is estimated to have a total construction cost of $3,900,000 and no right of way or utility relocation costs other than the minor cost of the USFS timber sale, which would be determined during the federal land transfer process following NEPA. The No Action Alternative would not result in any construction and would only involve routine maintenance costs.

3.3 How would the project affect properties and land use in the area?

The project is located within the Boston Mountain Ecoregion. The Boston Mountains are one of the Ozark plateaus and are characterized as mountainous and typically forested. The immediate project area consists of hardwood forest with rock outcrops on the steep slopes southwest of the bridge.

The project would impact undeveloped USFS property (see Figure 5 and Section 3.4). No development is anticipated to occur through the proposed project corridor and surrounding areas, regardless of the implementation of this project. No cumulative land use impacts are expected outside of the direct land use conversions outlined above.

The No Action Alternative would not result in any right of way acquisition, relocations, or land use changes, and would not encourage any additional development in or around the project area. No indirect or cumulative impacts related to land use are expected with the No Action Alternative.

3.4 Would the project affect any public lands?

Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 prohibits the use of publicly owned parks, national wildlife and refuge areas, and significant historic sites unless it can be shown that: 1) There is no prudent and feasible alternative that meets the project's purpose and need that would avoid use of the land; and 2) All possible planning to minimize harm to the property has been examined. Impacts to publicly-owned resources are described below.

Ozark-St. Francis National Forest

The Ozark-St. Francis National Forests was first established in 1908 as the Ozark National Forest (now managed jointly with the St. Francis National Forest) and covers 1.2 million acres in the state of Arkansas. The Ozark-St. Francis National Forests is not considered a Section 4(f) resource as it functions as a multiple-use public land holding, as described by FHWA Section 4(f) policy.

Approximately 2.3 acres of right of way and 0.1 acre of temporary construction easements would be required from Ozark-St. Francis National Forests property for the Build Alternative, as seen in Figure 5.

Build Alternative: Property Impacts

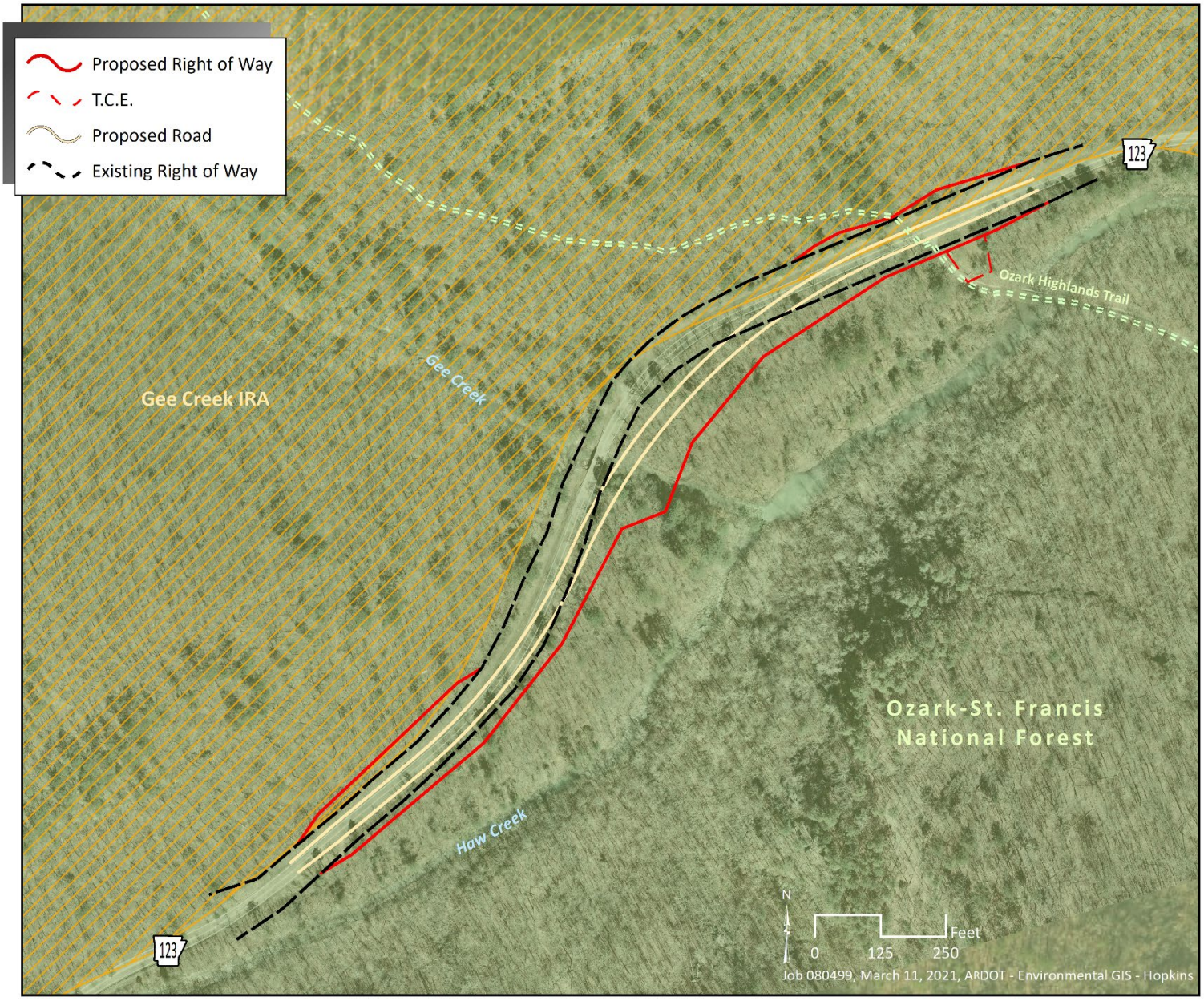

Figure 5

The No Action Alternative would not involve Ozark-St. Francis National Forests lands. If deterioration of the existing bridge lead to its closure, both logging and recreational activities within the national forest would be affected.

Gee Creek Inventoried Roadless Area (IRA)

IRAs are areas within USFS lands that were designated as "Roadless" under the Roadless Area Conservation Rule on January 12, 2001. The Roadless Area Conservation Rule allows for road construction to

improve road safety concerns (36 CFR 294.12(b)(5)). The proposed bridge replacement addresses safety concerns associated with a failing bridge or closing a highway, severing emergency access routes. The Gee Creek IRA is not considered a Section 4(f) resource as it functions as a multiple-use public land holding, as described by FHWA Section 4(f) policy.

Approximately 0.3 acre of proposed right of way that would be acquired from the USFS for the Build Alternative is within the Gee Creek IRA, as seen in Figure 5.

The No Action Alternative would not impact any IRAs.

Haw Creek Falls Recreation Area

The Haw Creek Falls Recreation Area consists of a primitive campground on the banks of Haw Creek Falls, a scenic waterfall. The access drive to the Haw Creek Falls Recreation Area, a Section 4(f) resource, is located within the east approach to the bridge on the southeast side of Highway 123.

Although the proposed alignment of the Build Alternative is to the same side of the highway and there would be some minor additional easements required on this side of the highway, access to the recreation area would be maintained throughout construction and none of the impacts would be within the USFS boundary of the recreation area.

The eventual closure of the Gee Creek bridge associated with the No Action Alternative would impact the Haw Creek Falls Recreation Area by cutting off access to the south and west on Highway 123, forcing travelers from this direction to use the detour route seen on Figure 3.

Ozark Highlands Trail

The Ozark Highlands Trail (OHT) is a 270-mile hiking trail across northern Arkansas with the west end at Lake Fort Smith and the east end at the Missouri border. The OHT crosses Highway 123 at the Haw Creek Falls access drive, within the east approaches of the existing and proposed bridges.

Hiking access to the OHT and Haw Creek Falls Recreation Area would be maintained throughout construction of the Build Alternative.

No impacts to the OHT are anticipated with either alternative.

3.5 How would the project affect cultural resources?

Section 106 of the National Historic Preservation Act requires agencies to consider the effects of Federal actions on historic properties. In compliance with Section 106 requirements, ARDOT cultural resource specialists consult with the State Historic Preservation Officer (SHPO) and Native American tribes.

What are cultural resources?

Cultural resources include elements of the built environment (buildings, structures, or objects) or evidence of past human activity (archeological sites). Those that are listed on or eligible for inclusion in the National Register of Historic Places (NRHP) are defined as historic properties.

Preliminary records reviews with the Arkansas Archeological Survey and Arkansas Historic Preservation Program, as well as early maps of the project area, were checked for indications of known archeological sites or historic structures. An archeological survey of the project area was also performed as well as a cultural resources survey to check for historic structures.

One archeological site was identified in the survey. The site is an abandoned dirt road fragment located along the east side of Gee Creek north of Haw Creek. No association of the road fragment to a significant trend/event or important person was found and the site was determined to be ineligible for inclusion in the National Register of Historic Places.

The Gee Creek bridge to be replaced was built in 1938. Because a substantial amount of the structure has been altered or replaced, including several piers and the parapet walls, it is no longer the best example of a steel multi-beam bridge. It was determined to be ineligible for inclusion in the National Register of Historic Places, and is not subject to Section 4(f) protection.

Neither the Build Alternative nor the No Action Alternative are anticipated to have any impacts to cultural resources.

SHPO coordination, including the submission of a cultural resources report, resulted in a finding of "no adverse effect" associated with the Build Alternative. SHPO clearance can be found in Appendix B.

3.6 How would views in the project area be affected?

The proposed project is located in the Big Piney Ranger District of the Ozark-St. Francis National Forests. The landscape of the Big Piney Ranger District is naturally forested with some evidence of human development in the form of roads, pastures, small towns and communities, and occasional residential clearings. The typical topography includes broad rounded ridges, terraces, bluff tops, and rugged mountains with sharply-defined narrow valleys.

Why are visual impacts important?

Visual impacts caused by a highway project are seen both by people traveling on the road and by those using the land adjacent to it, in this case, those using the Haw Creek Falls Recreation Area and OHT hikers. People are concerned with the visual character of highways, especially those with high scenic value such as

Typical View in Project Area

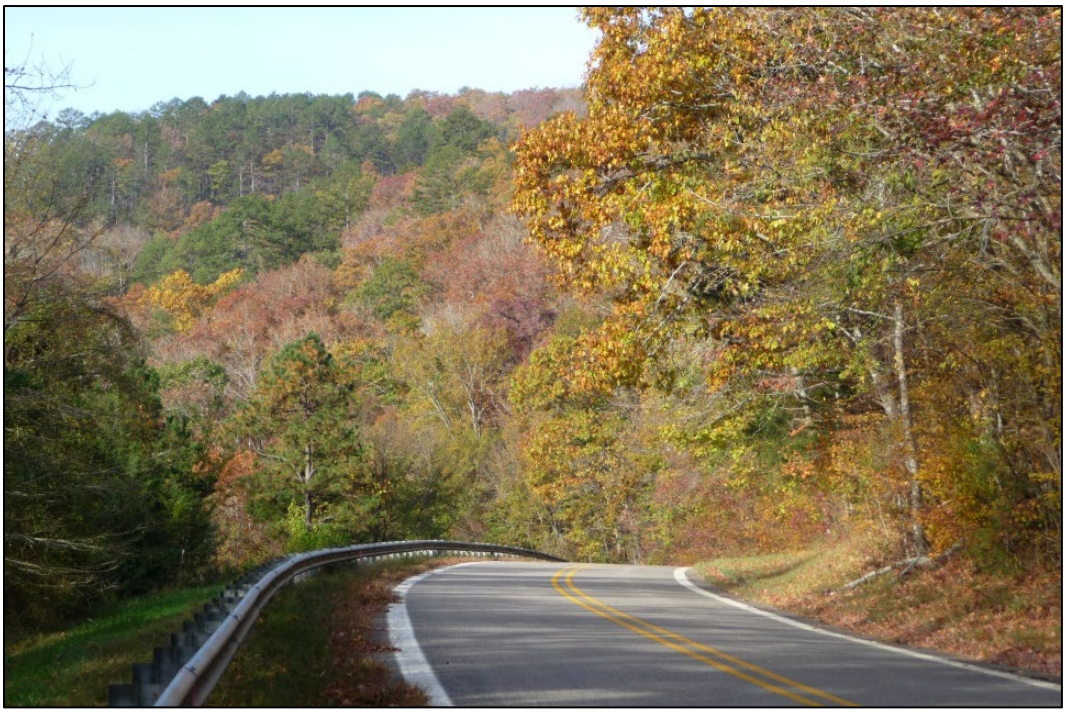

Figure 6

The majority of travelers through the project corridor are presumed to be recreationists and tourists and commercial logging operations. Multiple chambers of commerce and tourism websites and publications reference Highway 123's scenic qualities. According to the USFS scenery management system, Highway 123's scenic qualities have public value and the preservation of these qualities is important. It is likely that there is a high level of viewer sensitivity to changes in visual quality in the project area.

The Build Alternative would be built on new alignment adjacent to the existing highway. This new alignment would require the removal of trees and other vegetation within the project limits, altering the view for motorists on Highway 123 and for OHT hikers. Replacing the bridge, which currently has deteriorated guardrail as a barrier, with a culvert that would be mostly hidden under the highway, would likely result in beneficial impacts for travelers along Highway 123.

Project construction would cause temporary negative visual impacts to highway motorists and OHT users with the presence of construction vehicles and equipment and soil disturbance as the new alignment is cleared and slopes are established. ARDOT's native grass and native

wildflower mixes would be planted on the final surface of all disturbed areas.

Overall, the impacts to views as a result of the project are expected to be minor and would lessen considerably over time as vegetation is reestablished. Adverse impacts to the overall visual quality are not anticipated as a result of the Build Alternative. The screening questionnaire used to determine the level of visual impact analysis required and the technical memorandum assessing potential impacts can found in Appendix C.

No impacts to views in the project area are expected as a result of the No Action Alternative.

3.8 How would natural water resources be affected?

Streams

The proposed project is on Gee Creek approximately 225' upstream of its confluence with Haw Creek. Gee Creek and Haw Creek are both perennial streams subject to flash flood-type events due to the mountainous topography in the area. Gee Creek has an exposed bedrock streambed at the existing and proposed structure locations. Haw Creek meets the Big Piney Creek National Wild & Scenic River approximately 1.7 mile downstream of its confluence with Gee Creek. The locations of these streams can be seen on Figure 2.

Because they can restrict aquatic species passage, as discussed in Section 2.3, a four-sided box culvert was not considered for this project. The three-sided/bottomless structure proposed with the Build Alternative would retain the native bedrock streambed which should provide easier construction of the in-stream piers compared to previous bottomless culverts that required excavation down to bedrock. The Build Alternative is anticipated to impact less than 125 linear feet and 0.1 acre of Gee Creek.

There is a small unnamed ephemeral tributary of Haw Creek where the new alignment would tie in to the existing alignment at the end of the project. The Build Alternative would require a 14' extension of the four pipe culverts at the crossing of this tributary under Highway 123.

Best practices to avoid water quality impacts would be implemented, such as filter socks below disturbed soils to trap and filter sediment before stormwater leaves the construction site and enters Gee Creek or

Where can I find ARDOT sediment and erosion control best practices?

Any potential sediment-related impacts to Big Piney Creek are mitigated by Section 110 of the *AHTD Standard Specifications, 2014 Edition*: Protection of Water Quality and Wetlands, the *ARDOT Erosion and Sediment Control Manual*, and the measures to be outlined in the Stormwater Pollution Prevention Plan required as part of the National Pollutant Discharge Elimination System Permit issued by the Arkansas Department of Environmental Quality.

the unnamed tributary of Haw Creek. Vegetation impacts along Gee Creek would be minimized as much as practicable to retain a riparian buffer. Storage of petroleum and other chemical products would not be allowed near any waterway. Demolition of the existing bridge would be conducted in such a way as to minimize turbidity and sedimentation in Gee Creek.

The Build Alternative would not require mitigation and, as such, would be allowed under the terms of a U.S. Army Corps of Engineers Section 404 Nationwide Permit 14 for Linear Transportation Projects, as defined in Federal Register 82(4):1860-2008. An Arkansas Division of Environmental Quality Short-term Activity Authorization for in-stream work and National Pollutant Discharge Elimination System permit and associated Stormwater Pollution Prevention Plan would also be required for soil disturbance. ARDOT will obtain all required waterway and stormwater permits before construction begins.

What is mitigation?

Impacts to natural resources, such as streams or wetlands, are often unavoidable during highway construction projects. Restoration, establishment, enhancement, or preservation of wetlands and streams may be legally required under the Clean Water Act, depending on the severity of the impacts.

As the bridge continued to deteriorate under the No Action Alternative, impacts to Gee Creek would eventually result if the bridge failed and collapsed into the stream.

National Wild & Scenic Rivers

Big Piney Creek, a National Wild and Scenic River (WSR) and Arkansas Extraordinary Resource Water, is approximately 1.8 mile downstream of the proposed project. The sediment and erosion control best practices related to water quality described in the section above are intended to prevent any type of impacts to Big Piney Creek and its outstandingly remarkable value of scenery, recreation, fish, botany, and geology as a result of the Build Alternative. No adverse impacts to Big Piney Creek WSR are anticipated as a result of either alternative.

What is a floodplain?

Floodplains are land areas that become covered by water in a flood event. Special flood hazard areas, also known as 100-year floodplains, are areas that would be covered by a 100-year flood event. This is the floodplain commonly used for insurance and regulatory purposes.

3.9 Would the project cause flooding in surrounding areas?

The project was reviewed to identify any encroachments into special flood hazard areas, also known as the 100-year floodplain, as shown on the Flood Insurance Rate Maps issued by the Federal Emergency Management Agency. No special flood hazard areas were identified within the project area and no adverse impacts to regulated floodplains are expected with either alternative.

What is a flood event?

Specific flood events, such as a 25-year or 100-year flood event, involve flood waters covering the associated floodplain. A 100-year flood event has a 1% chance of occurring in any given year, a 25-year flood event has a 4% chance of occurring in any given year, and a 7-year flood event has a 14% chance of occurring in any given year.

At the existing structure, the highway is overtopped by water at approximately a 25-year flood event. The Build Alternative would raise the elevation of the highway and structure to a 25-year flood design,

meaning that in the case of a 25-year flood event, the culvert would convey the flood waters and the highway would not be overtopped.

The No Build Alternative would not result in any floodplain impacts or affect the flooding frequency of Highway 123 or adjacent properties.

3.10 Would any wildlife be impacted by the project?

Federally Threatened and Endangered Species

The endangered gray bat (*Myotis grisescens*), the endangered Indiana bat (*Myotis sodalis*), the endangered Ozark big-eared bat (*Corynorhinus townsendii ingens*) and the threatened northern long-eared bat (*Myotis septentrionalis*) have the potential to occur in the project area. Mist netting surveys nearby did not capture any of these four species.

The U.S. Fish & Wildlife Service determined that the Build Alternative **may affect, but not is not likely to adversely affect**, these species. More information on threatened and endangered species can be found in the biological evaluation in Appendix D.

No impacts to federally-protected species are anticipated with the No Action Alternative.

What is the difference between threatened and endangered species?

An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. Endangered species receive the highest level of protection. A threatened species is one that is likely to become endangered in the near future. Both threatened and endangered species receive federal protection under the Endangered Species Act. Sensitive species are not protected by the Endangered Species Act but have been identified by the USFS Regional Forester as having population viability concerns.

USFS Sensitive Species

The USFS Region 8 Forester's sensitive species list contains 11 species with the potential to occur in the project area. These species include three plants, two mussels, two insects, a fish, a bat, and two crustaceans. Most of these species lack suitable habitat in the project area and plant surveys did not identify any individuals of the sensitive plant species. The USFS determined that the Build Alternative **may impact individuals, but is not likely to cause a trend to federal listing or loss of viability** of these species. More information on the USFS sensitive species can be found in the biological evaluation in Appendix D.

No impacts to the USFS sensitive species are anticipated with the No Action Alternative.

Migratory Birds

Several migratory bird species, such as the Eastern Phoebe *(Sayornis phoebe),* Cliff Swallow *(Petrochelidon pyrrhonota),* and Barn Swallow *(Hirundo rustica),* build nests underneath bridges and culverts. No bird nests from previous nesting seasons were observed under the bridge

during a recent inspection. Impacts to migratory birds associated with the Build Alternative would be minimized by requiring the contractor either to erect nets before the beginning of the active nesting season or to remove inactive nests before beginning work, as well as to monitor and remove the results of any nest-building activities before they can be established.

The Build Alternative would require the conversion of approximately 1.7 acres of forest into transportation use. Tree removal on the new alignment may destroy nests and or otherwise impact migratory birds, but the creation of small patches of early successional habitat along highways has been shown to benefit certain species of forest interior birds and to increase overall bird diversity in forests.

No impacts to migratory birds are associated with the No Action Alternative.

Other Fish and Wildlife

The Build Alternative would convert roughly 1.7 acres of mature forest to transportation use. This creation of early successional habitat could create minor alterations to wildlife foraging patterns and travel corridors. Impacts could include mortality of small mammals and temporary avoidance of the area during construction. The increase in early successional habitat could increase wildlife diversity in the forest locally. The increased sedimentation and disturbance within Gee Creek would have temporary negative impacts on aquatic species, but populations would be expected to rebound soon after construction is complete.

No impacts to fish and wildlife are expected as a result of the No Action Alternative.

3.11 Does the project have any indirect impacts?

Council of Environmental Quality and FHWA regulations require that potential indirect effects be considered during the NEPA process. Indirect effects are reasonably foreseeable effects that may be caused by the project but would occur in the future or outside of the project area.

Encroachment-Alteration Effects

Encroachment-alteration effects are physical, chemical, or biological changes in the environment that occur as a result of the project but are removed in time or distance from the direct effects. Impacts to water

quality that occur as a result of the project but are then distributed off-site as water moves downstream beyond the project area, are the primary encroachment-alteration effect for this project. These impacts are discussed in Section 3.8.

Induced-Growth Effects

Changes in the pattern of land use, growth patterns, population density, or growth rate due to the construction of a highway project also may occur, and the resulting induced development can impact sensitive resources. This is another type of indirect effect that is categorized as induced-growth effects.

The Build Alternative is unlikely to induce any additional development of the area as the entire project area is within ownership of the Ozark-St. Francis National Forests and no other improvements are proposed. The No Action Alternative involves no work other than regular maintenance and would not result in any indirect effects other than the continued deterioration and eventual failure of the subject bridge.

Neither alternative is expected to result in adverse indirect impacts on any natural, cultural, or social resources.

3.12 Does the project have any cumulative impacts?

Cumulative impacts result from the total effects of a proposed project when added to other past, present, and reasonably foreseeable future projects or actions. Cumulative impacts include the direct and indirect impacts of a project together with the reasonably foreseeable future actions of others: e.g., other federal, state, and local governments, non-governmental organizations, and private entities. The direct impacts that result from an action may be undetectable but can add to other disturbances and eventually lead to a measurable environmental change. Cumulative effects are studied so that the public, decision makers, and project proponents take the time to consider the "big picture" effects a project could have on the community and environment. For any given resource, a cumulative impact would only potentially exist if the resource were also directly or indirectly impacted by the proposed project.

Ozark-St. Francis National Forests

There are no other ARDOT projects near the proposed project that would require USFS property. ARDOT does have other projects that are

programmed or under construction in the Ozark-St. Francis National Forests, including several emergency landslide repair projects throughout the Forests, the replacement of the Highway 23 bridge over the Mulberry River, the replacement of the Highway 215 bridge over Wolf Pen Creek, several passing lanes on Highway 7, improvements to a Baxter County road, and the replacement of the Johnson County bridge over Panther Creek. Cumulatively, these projects are not expected to result in significant impacts to the 1.2 million acres of the Ozark-St. Francis National Forests and will support USFS transportation needs as well as those of the general traveling public.

The USFS does not have any proposed projects in the area that would require the conversion of USFS property to other uses. Neither alternative would result in significant cumulative impacts to the Ozark-St. Francis National Forests.

Gee Creek IRA

The subject project is the only ARDOT project programmed or under construction impacting the Gee Creek IRA, and there are no other USFS or outside projects expected to contribute cumulatively to impacts to the IRA due to protections placed upon these areas. Neither alternative would result in significant cumulative impacts to Gee Creek IRA.

Highway 123 Visual Quality

The USFS recently implemented a 5,730-acre prescribed burn, "Hess Knob," along the south/east side of Highway 123 in the project area in March 2021. An additional 1595-acre burn, "Gee Creek," has been approved for the north/west side of Highway 123 beginning at the proposed bridge replacement and continuing towards Highway 7.

The negative effects of these burns, most commonly observed as black marks on trees, would be visible from Highway 123 but are expected to only last for a single growing season. Overall, prescribed burns contribute positively to scenic quality by clearing underbrush, discouraging the growth of invasive species, and encouraging greater plant species diversity, especially for native flowering plants.

In addition, ARDOT recently replaced the Highway 123 bridge over Haw Creek towards Highway 7 with a bottomless arch culvert. The culvert was replaced on new alignment adjacent to the existing structure, so project visual impacts included primarily the clearing of trees. Disturbed areas were revegetated with ARDOT's native grass and

wildflower seed mixes and the limited topsoil found on the project was retained and reused to promote revegetation and preserve the seed bank.

ARDOT will also be implementing the recently-approved USFS project for non-native invasive plant species control and roadside vegetation management that included provisions for the use of herbicides in the project area for highway roadside maintenance. When herbicide is used for highway vegetation management, it can have short-term negative visual effects as the target plants die, but these effects are only temporary and minor. Overall, implementation of this project is anticipated to have long-term visual quality benefits throughout the Ozark-St. Francis National Forests by allowing state and local jurisdictions to more effectively manage vegetation and to control non-native invasive plants on roadway corridors, one of the primary modes of spread for invasive species.

The cumulative visual impacts of the Build Alternative and the other USFS and ARDOT actions described above are anticipated to be only temporary and minor. The No Action Alternative would not contribute to any impacts on visual quality.

Threatened and Endangered Species

Information on cumulative impacts to endangered, threatened, and sensitive species can be found in the biological evaluation in Appendix D. Neither alternative is expected to contribute to significant cumulative impacts to any listed species.

3.13 What other resource areas were examined but not impacted?

Air Quality

This project is located in an area that is designated as in attainment for all transportation pollutants. The Build Alternative has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been link with any special mobile source air toxics (MSAT) concerns. The Build Alternative would not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the No Action Alternative.

What is air quality attainment?

Areas are considered in attainment for air pollutants when measured levels are below the National Ambient Air Quality Standards set by the U.S. Environmental Protection Agency.

Noise

Noise predictions have been made for this project utilizing FHWA's Traffic Noise Model 2.5. These predictions indicated that there would be no discernable difference in noise levels between the Build Alternative and No Action Alternative, and between existing and forecasted (2038) traffic volumes. No noise impacts are anticipated as a result of either alternative. Appendix E provides more detailed information on the noise analysis.

What is noise?

Sound is anything we hear, while noise is unwanted or undesirable sound. Traffic noise is a combination of the noises produced by vehicle engines, exhaust, and tires.

Important Farmland

Most of the agriculture activity in the project area is related to timber production on USFS lands. Right of way acquisition for the proposed project would not significantly reduce the amount of land in the Ozark-St. Francis National Forests, as discussed in Section 3.4. No Important Farmland would be impacted by either alternative.

What is Important Farmland?

Important Farmland is defined by the U.S. Department of Agriculture (USDA) as land suited to food, feed, forage, fiber, and oilseed crops. Prime Farmland has the best combination of physical and chemical characteristics for the production of crops, while Farmland of Statewide Importance is land other than Prime Farmland which has a good combination of these characteristics

Environmental Justice

Environmental justice refers to social equity in bearing the burden of adverse environmental impacts, especially with regards to low income and minority populations. The Build Alternative property impacts are all on USFS property and there are no private properties of any kind located near the project area. The Build Alternative would not have any adverse or disproportionate impacts on environmental justice/Title VI populations; therefore, in accordance with the provisions of Executive Order 12898, Title VI of the Civil Rights Act of 1964 and FHWA Order 6640.23, no further analysis is necessary.

What is EJ/Title VI?

An EJ evaluation determines whether low-income or minority populations would suffer disproportionately high and adverse effects from an action.
Title VI of the Civil Rights Act of 1964 (Title VI) prohibits discrimination on the basis of race, color, sex, national origin, religion or disability under any program or activity receiving Federal financial assistance.

Public Water Supplies

The Arkansas Department of Health database of public water supplies was examined to determine if any surface water intakes, wellheads, or associated protection areas of either type were present in the project area. No known public water supplies are located in or near the project are, and there are no impacts to public water supplies anticipated with either alternative.

Utilities

The ARDOT Right of Way Division - Utility Section was contacted to determine if any public or private utilities would be impacted by the proposed project. No utilities are anticipated to be impacted by either alternative.

Wetlands

There were no wetlands identified within the project alternative. Neither alternative would impact jurisdictional wetlands.

What is a wetland?

Wetlands are areas typically inundated or saturated by surface or groundwater to the extent that they can support vegetation adapted for life in wet soil conditions.

Hazardous Materials

A visual survey and database search were performed to determine if any hazardous materials were located in the project area. No hazardous materials, landfill sites, leaking underground storage tanks, or hazardous areas were noted within the immediate project area.

What are hazardous materials?

A hazardous material is any item or chemical that can cause harm to people, plants, or animals when released into the environment.

If hazardous materials are identified, observed or accidentally uncovered by any ARDOT personnel, contracting company(s), or state regulating agency, it would be ARDOT's responsibility to determine the type, size and extent of contamination. ARDOT would develop a remediation plan and coordinate disposal methods to be employed for the type of contamination identified. All remediation work would be conducted in conformance with the Arkansas Division of Environmental Quality, Environmental Protection Agency, and Occupational Safety and Health Administration regulations.

No hazardous materials are anticipated to be impacted by either alternative.

Chapter 4: Recommendations

What's in Chapter 4?

Chapter 4 contains the results and conclusions of this Environmental Assessment.

4.1 What are the results of this EA?

The environmental analysis of the proposed project did not identify any significant impacts to the natural, cultural, or social environment as a result of either alternative. A summary of the impacts associated with each alternative can be found in Table 1.

Table 1

Alternative Impact Comparison

Alternative	Total Cost	Length	USFS ROW/TCE	IRA ROW	Stream Impacts	Visual Impacts	Wildlife Habitat
No Action	None	N/A	None	None	None	None	None
Build	$3.9M	794	2.4 acres/ 0.1 acre	0.3 acre	140 linear feet	Temporary & minor during construction	1.7 acres

4.2 Is the NEPA process finished?

After this EA is signed by the FHWA and approved for public dissemination, a public hearing and 30-day comment period will be offered jointly with the USFS as a NEPA cooperating agency.

After a review of comments received from citizens, public officials, and governmental agencies, the next step in the environmental process will be to identify a Preferred Alternative based on the information contained in the EA and the comments received.

After the Preferred Alternative design is finalized, a FONSI document will be prepared by the ARDOT and submitted to the FHWA. Approval of the FONSI by the FHWA will identify the Selected Alternative and conclude the NEPA process.

Reference Page: Acronyms

ADA	Americans with Disabilities Act of 1990
ARDOT	Arkansas Department of Transportation
EA	Environmental Assessment
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impacts
IRA	Inventoried Roadless Area
MSAT	Mobile Source Air Toxics
NEPA	National Environmental Policy Act
OHT	Ozark Highlands Trail
WSR	National Wild & Scenic River
SHPO	State Historic Preservation Officer
USDOT	U.S. Department of Transportation
USFS	U.S. Forest Service
USFWS	U.S. Fish & Wildlife Service

Appendix A: U.S. Forest Service Correspondence

United States Department of Agriculture **Forest Service** **Ozark-St. Francis National Forest**

605 West Main Street
Russellville, AR 72801
479-964-7200
Fax: 479-964-7255

File Code: 1950
Date: June 19, 2019

John Fleming
Division Head, Environmental Division
P.O. Box 2261
Little Rock, AR 72203-2261

Dear Mr. Fleming:

In response to your letter dated October 16, 2017, I accept cooperating agency status for the Forest Service on Job Number 080499, due to the involvement of National Forest System lands and a National Wild and Scenic River in two bridge replacements and installation of a new culvert along Highway 123 in Johnson County, Arkansas. The Federal Highway Administration (FHWA) and the Arkansas Department of Transportation (ARDOT) will be responsible for NEPA and other related consultation document preparation that will include Forest Service requirements. Outlined below are the Ozark-St. Francis National Forests' NEPA requirements for ARDOT projects, followed by my staff's comments on the project design. We appreciate all of you and your staff's efforts on this project to come to a workable solution for this stretch of Highway 123 in Johnson County.

Analysis and Documentation
ARDOT is responsible for including connected actions in the effects analysis and environmental documentation for the highway project. These actions could include projects such as merchantable timber removal and utility line relocation in the project area. This project is led by a partnership between the FHWA and ARDOT. The FHWA is involved because it is funding a portion of the project and has the primary responsibility for the content and accuracy of this NEPA document. The project is also being funded with state funds allocated to ARDOT. ARDOT is responsible for administering and maintaining the state highway system, which includes Highway 123 and associated structures. For these reasons, FHWA will be the lead federal agency responsible for NEPA content and approval, while ARDOT will be conducting the environmental reviews and consultations and will be responsible for NEPA documentation preparation. These processes must comply with NEPA and its implementing regulations at 40 CFR §1500-1508. In accordance with the 1999 Memorandum of Understanding between the USDA Forest Service and the FHWA, we have determined that the Forest Service does not have a NEPA decision to authorize FHWA and ARDOT activities concerning this proposal.

As a cooperating agency, the Forest Service's anticipated level of involvement will include activities and coordination pursuant to NEPA implementing regulations (40 CFR §1501.6(b)). Forest Service participation in the NEPA process will include review of environmental analyses and related consultation documents completed by ARDOT that pertain to activities on Forest Service lands. Where the Forest Service has expertise, we will provide input to draft NEPA and consultation documents, including the sufficiency of proposed measures to protect resources on Forest Service lands, evaluate consistency with the Forest Plan, and identify any potential areas of concern or public interest. The Forest Service will also review and submit separate analyses

needed for compliance with Section 7(a) of the Wild & Scenic River Act and Inventoried Roadless Areas (IRAs) affected by the project.

In support of the public participation process, the Forest Service will provide ARDOT with a list of interested parties to include as part of the public participation plan for scoping and subsequent public involvement periods relating to review of the Draft Environmental Assessment. The project will be posted to our Ozark-St. Francis National Forests external web site with relevant documents available for review and will link to any other established project web site as needed. My staff will be available to assist ARDOT in considering relevant public comments and responses, and subsequent changes needed to the environmental analysis and consultations. Since we have determined there is no Forest Service NEPA decision for this project, the Forest Service project-level objection process in accordance with 36 CFR §218 does not apply to this project.

Proposed Action

The Proposed Action includes one bridge replacement in a new alignment over Gee Creek, one new bridge construction parallel to an existing bridge over Big Piney Creek, and one new culvert in Sugar Creek to support a new road alignment. The Proposed Action would include a modification of the Gee Creek easement, a new easement for the Sugar Creek culvert, and retention of the existing easement for the single-lane Big Piney Creek Bridge to become a pedestrian bridge, potentially under a maintenance agreement with Johnson County, and a new easement for the new Big Piney Creek Bridge structure. ARDOT would continue to be responsible for all maintenance and costs associated with these easements and structures that FHWA has issued on behalf of the USFS.

The Forest Service has multiple concerns that will need to be addressed in planning this project. The project team met many times over the last eight months to discuss these issues, and the following items will need to be addressed in the environmental documentation and design for these projects:

GEE CREEK SITE:

- Roadless Area considerations will need to be addressed at this site. To complete the analysis of impacts to the Roadless Area, the Forest Service will need project details, such as amount and size of timber to be removed and the project area of disturbance.
- Culvert considerations for this site would need to account for the following: fish passage, culvert slope and alignment matching streambed slope and alignment, structure bottom depth counter-sunk below maximum scour depth of the stream, and streambed material replaced within the culvert. At this site, due to the presence of bedrock near the culvert surface, the Forest Service recommends a bottomless culvert structure.

BIG PINEY CREEK SITE:

- Bridge design considerations: the bridge needs to blend with the natural environment as much as possible. New structure should be subordinate in design and reflect the historic structure where possible. This can be accomplished by minimizing any new design elements and matching the color, texture and lines of the existing historic bridge materials.
- Abutments also need to follow the above criteria in terms of color and texture matching the existing bridge and the natural environment as much as possible. Abutment footprints will also need to be minimized to lessen impacts to the free-flow characteristics of the

Big Piney Creek. This could include minimizing the number of piers below the Ordinary High Water Mark and lining up piers on the new bridge with the old bridge structure.

- The access site under the existing bridge west of Big Piney Creek will need to have a defined boundary to remove and/or limit vehicular access north and south along the riparian area to reduce potential sedimentation and turbidity of the river. For areas like this in the project area, where there is existing access to roads and structu Service requests that access features be incorporated into the design for n Some areas, such as this access site, may potentially require Forest Servic gates as warranted.
- For temporary construction pads, the design should minimize compaction streambed and allow for all construction material to be removed from the minimizing disturbance of the native channel. In-stream work should be p flow conditions.
- The apron at the east footing of the proposed bridge over Big Piney Creek involves placing riprap near the top of the bank of the creek. We are concerned that the bank would erode over time and the apron may require follow-up treatments. It is also undesirable to have visible riprap in the Wild and Scenic River corridor. We would request consideration of alternative methods to protect this bank and bridge footing that better align with the intent of the Wild and Scenic qualities of the Big Piney Creek.
- Considerations for the Ozark Highlands Trail and access will need to be included in project design and implementation/construction. These include: trail alignment changes that will need to be made after the project is complete, safety considerations for pedestrians on the current bridge once it is transitioned to pedestrian use (bollards of some type to restrict vehicular access), and no construction-related use of Ozark Highlands Trail trailheads and parking areas during project implementation.

SUGAR CREEK SITE:

- Due to its proximity to Big Piney Creek, the Sugar Creek proposed culvert area, downstream of the existing Hwy 123 culvert, would also be within the Big Piney Creek Wild and Scenic River corridor. For this reason, additional requirements may be needed for this site to ensure we meet the intent of maintaining the Wild and Scenic River qualities for Big Piney Creek.
- Culvert considerations for this site would need to account for the following, whether a bottomless or box culvert design was chosen: fish passage, culvert slope and alignment matching streambed slope and alignment, structure bottom depth counter-sunk below maximum scour depth of the stream, and streambed material replaced within the culvert. The new culvert would need to be designed to meet or exceed the flood capacity and channel width of the existing upstream culvert. This could be accomplished with an oversized culvert with larger and fewer barrels.
- Fill needed for elevated roadbed above culvert will need detailed evaluation and justification in environmental documents. Alternative designs that involve a steeper slope, different materials, and stabilization will be needed to minimize the amount of fill and sedimentation in this area, since it is within the Wild and Scenic River corridor. Since this site is also within the Wild and Scenic River corridor, it is undesirable to have visible riprap on this site. Aesthetic considerations noted above for the Big Piney Creek would also apply to the Sugar Creek site.

If you or your staff have any questions concerning this letter, please contact Mike Mulford at (870) 428-5528, ext 5136 or Amy Burt at (479) 964-7282.

Sincerely,

TIMOTHY E. JONES
Acting Forest Supervisor

Mike Mulford, Amy Burt

Appendix B: State Historic Preservation Officer Clearance

THE DEPARTMENT OF ARKANSAS
HERITAGE

Asa Hutchinson
Governor

Stacy Hurst
Secretary
Parks, Heritage & Tourism

Arkansas Arts Council
•
Arkansas Historic Preservation Program
•
Arkansas Natural Heritage Commission
•
Arkansas State Archives
•
Delta Cultural Center
•
Historic Arkansas Museum
•
Mosaic Templars Cultural Center
•
Old State House Museum

ARKANSAS HISTORIC PRESERVATION PROGRAM

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www.arkansaspreservation.com

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October 11, 2019

Mr. John Fleming
Division Head
Environmental Division
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

RE: Johnson County — General
Section 106 Review — FHWA
Gee Creek Str. & Apprs. (S)
Route 123, Section 3
ARDOT Job Number: 080499
AHPP Tracking Number: 99492.04

Dear Mr. Fleming:

The staff of the Arkansas Historic Preservation Program (AHPP) reviewed the Project Identification Form (PIF) for the above-referenced job in Section 19, Township 12 North, Range 21 West in Johnson County. According to your correspondence, the altered plans for the undertaking entail replacement of Bridge M1864 that spans Gee Creek with a box culvert. The project length is 605.6 meters and the proposed right-of-way (ROW) acquisition is 2.46 acres.

The AHPP concurs that Site 3JO0827 is not eligible for inclusion in the National Register of Historic Places.

Based on the provided information and the negative results of the field investigation, the AHPP concurs with a finding of **no historic properties affected pursuant to 36 CFR § 800.4(d)(1)** for the proposed undertaking.

In the event of a post- review discovery of historic properties within the area of potential effects, please contact the AHPP and other consulting parties in accordance with 36 CFR § 800.13(b)(3).

Tribes that have expressed an interest in the area include the Cherokee Nation (Ms. Elizabeth Toombs), the Chickasaw Nation (Ms. Karen Brunso), the Muscogee (Creek) Nation (Ms. Corain Lowe-Zepeda), the Osage Nation (Dr. Andrea Hunter), the Quapaw Nation (Mr. Everett Bandy), the Shawnee Tribe (Ms. Tonya Tipton), and the United Keetoowah Band of Cherokee Indians (Ms. Erin Thompson and Charlotte Wolfe). We recommend consultation in accordance with 36 CFR § 800.2(c)(2).

Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, please call Eric Mills of my staff at 501-324-9784 or email eric.mills@arkansas.gov.

Sincerely,

Eric R. Mills

For Scott Kaufman
Director, AHPP

cc: Mr. Randall Looney, Federal Highway Administration
Dr. Ann Early, Arkansas Archeological Survey

Appendix C: Visual Impacts

ARKANSAS DEPARTMENT OF TRANSPORTATION
ARDOT.gov | IDriveArkansas.com | Scott E. Bennett, P.E., Director
10324 Interstate 30 | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2000

INTEROFFICE MEMORANDUM

March 13, 2020

TO: Project File

FROM: Mary Pearson, Assessments Section, Environmental Division

SUBJECT: Job Number 080499
FAP Number NHPP-0036(18)
Gee Creek Str. & Apprs.
Route 123, Section 3
Johnson County
Visual Impact Assessment Technical Memorandum

Purpose of this Memorandum

The purpose of this Visual Impact Assessment (VIA) Memorandum (memo) is to evaluate potential visual impacts associated with the subject project. The VIA was prepared using guidance outlined in the *Guidelines for the Visual Impact Assessment of Highway Projects* published by the Federal Highway Administration (FHWA) in January 2015.

Visual Impact Assessment

The VIA Scoping Questionnaire was completed. As shown in Attachment 1, the response to each question has a corresponding value of either 1 or 2, resulting in an overall score of 11. Consistent with FHWA guidelines, a score of 10 to 14 recommends the preparation of a brief visual impact assessment in memo format. This memo documents the recommended level of assessment.

Visual resource and VIA definitions for the concepts and terms used in the remainder of this memo are provided in Attachment 2. The visual impacts described are associated with the Build Alternative; no impacts are anticipated under the No Action Alternative.

Job Number 080499
Visual Impact Assessment
Page 2 of 3

Proposed project viewers are categorized as either neighbors or travelers. Neighbors include residents and business occupants. Travelers include users of the project corridor and adjacent roadways.

Existing Visual Character

The proposed project involves replacing an existing bridge with a reinforced concrete box culvert. The box culvert would be placed slightly east of the existing bridge, requiring a segment of new alignment. The two existing travel lanes would be widened from 10 feet to 11 feet, and the existing shoulders would be widened from 2 feet to 4 feet.

The project corridor extends approximately 0.34 mile within the Highway 123 winds to the east, following the course of Haw Creek. Bluffs and rock formations line the steep slopes near the roadway. The forest includes a mix of oak, hickory, and pine on the hillsides, with mostly beech and maple growing along the creek bed. Topography and forest density prevent most views beyond the immediate foreground, conditions that highlight contrasting areas of exposed rock and diversely-patterned foliage lining both sides of the roadway.

The entrance to the Haw Creek Falls Campground is located in the project footprint, although the roadway is not visible from the campground facilities. The Ozark Highlands Trail also crosses Highway 123 at the campground entrance. In the absence of project neighbors, project viewers would be limited to travelers – primarily motorists, but also including trail users and recreationists at limited vantage points along Haw Creek in the immediate project vicinity.

Permanent Impacts

The increase in roadway width and profile would slightly modify the appearance of the existing roadway. Removing the bridge and clearing trees and vegetation would alter the project corridor's current appearance. Depending on viewer exposure and sensitivity, these changes could be experienced as either beneficial, neutral, or adverse.

The proposed roadway cross section and materials are typical of transportation improvements made to highways throughout the state. Visual elements uncommon in the area would not be introduced, and landforms would not be noticeably altered. Based on predicted viewer exposure and sensitivity, permanent impacts would be minor and localized.

Job Number 080499
Visual Impact Assessment
Page 3 of 3

Temporary Impacts

Project construction would result in the short-term presence of construction vehicles and equipment, grading and excavation, and vegetation clearing throughout the project area. The areas where construction and grading would remove existing natural vegetation would be viewable by travelers and site-specific neighbors. Grading and excavation activities and the presence of construction vehicles and equipment would result in a temporary change in the visual character of the project corridor. These activities would be short-term. Impacts in roadside cleared areas would be short/medium-term until new vegetation becomes established. These temporary visual impacts would be minor and not expected to result in an adverse response by typical viewers.

Avoidance, Minimization and/or Mitigation Measures

Construction of this project would introduce minor changes to views but would not alter the overall character of the project corridor. Impacts to existing vegetation would be minimized through revegetation efforts as part of the process to ensure that biological resources are not adversely affected. Coordination with the Ozark National Forest during project development could help minimize adverse impacts and promote beneficial impacts. As a result, adverse impacts to the overall visual character of the project corridor are not expected as a result of the proposed project.

Attachments

1. VIA Scoping Questionnaire
2. VIA Definitions

Visual Impact Assessment Scoping Questionnaire

Project Name: Gee Creek Str. & Apprs. (S)

Location: Highway 123, Johnson County

Special Conditions/Notes: Conducted By: M. Pearson

Environmental Compatibility

1. *Will the project result in a noticeable change in the physical characteristics of the existing environment?* (Consider all project components and construction impacts - both permanent and temporary, including landform changes, structures, noise barriers, vegetation removal, railing, signage, and contractor activities.)

- ☐ High level of permanent change (3)
- ☐ Low level of permanent or temporary change (1)
- ☑ Moderate level of permanent change (2)
- ☐ No Noticeable Change (0)

2. *Will the project complement or contrast with the visual character desired by the community?* (Evaluate the scale and extent of the project features compared to the surrounding scale of the community. Is the project likely to give an urban appearance to an existing rural or suburban community? Do you anticipate that the change will be viewed by the public as positive or negative? Research planning documents, or talk with local planners and community representatives to understand the type of visual environment local residents envision for their community.)

- ☐ Low Compatibility (3)
- ☑ High compatibility (1)
- ☐ Moderate Compatibility (2)

3. *What level of local concern is there for the types of project features (e.g., bridge structures, large excavations, sound barriers, or median planting removal) and construction impacts that are proposed?* (Certain project improvements can be of special interest to local citizens, causing a heightened level of public concern, and requiring a more focused visual analysis.)

- ☐ High concern (3)
- ☑ Low concern (1)
- ☐ Moderate concern (2)
- ☐ Negligible Project Features (0)

4. *Is it anticipated that to mitigate visual impacts, it may be necessary to develop extensive or novel mitigation strategies to avoid, minimize, or compensate for adverse impacts or will using conventional mitigation strategies, such as landscape or architectural treatment adequately mitigate adverse visual impacts?*

- ☐ Extensive Non-Conventional Mitigation Likely (3)
- ☐ Some non-conventional Mitigation Likely (2)
- ☑ No Mitigation Likely (0)
- ☐ Some Mitigation Likely (1)

5. Will this project, when seen collectively with other projects, result in an aggregate adverse change (cumulative impacts) in overall visual quality or character? (Identify any projects [both state and local] in the area that have been constructed in recent years and those currently planned for future construction. The window of time and the extent of area applicable to possible cumulative impacts should be based on a reasonable anticipation of the viewing public's perception.)

- ☐ Cumulative Impacts likely: 0-5 years (3)
- ☑ Cumulative Impacts likely: 6-10 years (2)
- ☐ Cumulative Impacts unlikely (1)

Viewer Sensitivity

1. *What is the potential that the project proposal may be controversial within the community, or opposed by any organized group?* (This can be researched initially by talking with the state DOT and local agency management and staff familiar with the affected community's sentiments as evidenced by past projects and/or current information.)

- ☐ High Potential (3)
- ☐ Moderate Potential (2)
- ☑ Low Potential (1)
- ☐ No Potential (0)

2. *How sensitive are potential viewer-groups likely to be regarding visible changes proposed by the project?* (Consider among other factors the number of viewers within the group, probable viewer expectations, activities, viewing duration, and orientation. The expected viewer sensitivity level may be scoped by applying professional judgment, and by soliciting information from other DOT staff, local agencies and community representatives familiar with the affected community's sentiments and demonstrated concerns.)

- ☐ High Sensitivity (3)
- ☐ Moderate Sensitivity (2)
- ☑ Low Sensitivity (1)

3. *To what degree does the project's aesthetic approach appear to be consistent with applicable laws, ordinances, regulations, policies or standards?*

☐ Low Compatibility (3) ☐ Moderate Compatibility (2)
☑ High compatibility (1)

4. *Are permits going to be required by outside regulatory agencies (i.e., Federal, State, or local)?* (Permit requirements can have an unintended consequence on the visual environment. Anticipated permits, as well as specific permit requirements - which are defined by the permitter, may be determined by talking with the project environmental planner and project engineer. Note: coordinate with the state DOT representative responsible for obtaining the permit prior to communicating directly with any permitting agency. Permits that may benefit from additional analysis include permits that may result in visible built features, such as infiltration basins or devices under a storm water permit or a retaining wall for wetland avoidance or permits for work in sensitive areas such as coastal development permits or on Federal lands, such as impacts to Wild and Scenic Rivers.)

☐ Yes (3) ☐ Maybe (2)
☑ No (1)

5. *Will the project sponsor or public benefit from a more detailed visual analysis in order to help reach consensus on a course of action to address potential visual impacts?* (Consider the proposed project features, possible visual impacts, and probable mitigation recommendations.)

☐ Yes (3) ☐ Maybe (2)
☑ No (1)

Total Project Score: 11

Determining the Level of Visual Impact Assessment

Total the scores of the answers to all ten questions on the Visual Impact Assessment Scoping Questionnaire. Use the total score from the questionnaire as an indicator of the appropriate level of VIA to perform for the project. Confirm that the level suggested by the checklist is consistent with the project teams' professional judgments. If there remains doubt about whether a VIA needs to be completed, it may be prudent to conduct an Abbreviated VIA. If there remains doubt about the level of the VIA, begin with the simpler VIA process. If visual impacts emerge as a more substantial concern than anticipated, the level of VIA documentation can always be increased.

The level of the VIA can initially be based on the following ranges of total scores:

☐ ***Score 25-30***

An *Expanded VIA* is probably necessary. It is recommended that it should be proceeded by a formal visual scoping study prior to beginning the VIA to alert the project team to potential highly adverse impacts and to develop new project alternatives to avoid those impacts. These technical studies will likely receive state-wide, even national, public review. Extensive use of visual simulations and a comprehensive public involvement program would be typical.

☐ ***Score 20-24***

A *Standard VIA* is recommended. This technical study will likely receive extensive local, perhaps state-wide, public review. It would typically include several visual simulations. It would also include a thorough examination of public planning and policy documents supplemented with a direct public engagement processes to determine visual preferences.

☐ ***Score 15-19***

An *Abbreviated VIA* would briefly describe project features, impacts and mitigation requirements. Visual simulations would be optional. An Abbreviated VIA would receive little direct public interest beyond a summary of its findings in the project's environmental documents. Visual preferences would be based on observation and review of planning and policy documents by local jurisdictions.

☑ ***Score 10-14***

A *VIA Memorandum* addressing minor visual issues that indicates the nature of the limited impacts and any necessary mitigation strategies that should be implemented would likely be sufficient along with an explanation of why no formal analysis is required.

☐ ***Score 6-9***

No noticeable physical changes to the environment are proposed and no further analysis is required. Print out a copy of this completed questionnaire for your project file to document that there is no effect. A *VIA Memorandum* may be used to document that there is no effect and to explain the approach used for the determination.

Visual Impact Assessment Definitions

The FHWA guidelines recognize three types of visual resources:

- **Natural visual resources** include landforms and land cover such as trees, vegetation, and water.
- **Cultural visual resource**s include manmade elements such as roadways, embankments, bridges, and buildings
- **Project visual resources** include the existing highway's geometrics, structures, and fixtures and those that will be placed in the environment as part of the proposed project.

The overall composition of visual resources helps determine the **visual character** of a scene or landscape. For highway project assessment purposes, visual resources and character are considered from two perspectives:

1. The view of the project to the surrounding community (neighbors).
2. The view from the project to motorists (travelers).

Neighbors who can see a highway project and travelers who use it are defined as **viewers**. Visual resource changes are assessed by considering the compatibility and/or contrast of the proposed projects with the visual character of existing environments. Viewer responses to these changes are predicted by considering both exposure and sensitivity.

Viewer exposure considers the physical limits of the views and the number and type of viewers. **Viewer sensitivity** considers the expectations of viewers based on existing environments and the extent to which various visual resources may be important to them.

The predicted viewer response to changes in the existing landscape are used to determine **visual quality** impacts. Potential impacts may be identified as neutral, adverse, or beneficial and described in the following terms:

- Extent – Are the effects site-specific, local, or even regional?
- Duration – Are the effects temporary or permanent, or short-term or long-term?
- Scale – Are the effects negligible, minor, moderate, or major?

Potential impact durations are defined below.

- Short-term – during construction.
- Short/medium-term – 1 to 5 years while new vegetation becomes established after construction.
- Medium/long-term – 5 to 15 years after construction when new vegetation would be effective mitigation.
- Long-term – Over 15 years.

Potential impact scales are defined below.

Negligible: Changes would be non-detectable or, if detected, effects would be slight and local. Impacts would not require mitigation.

Minor: Changes would be noticeable, although the changes would be small and localized. Conventional mitigation measures may be necessary to reduce potential effects.

Moderate: Changes would be noticeable and have localized and potentially regional scale impacts; historical conditions would be altered. Conventional mitigation measures may be necessary to reduce potential effects.

Major: Changes would be noticeable and would have substantial consequences on a local and/or regional level. Mitigation measures to offset the effects would be required to reduce impacts, although long-term changes to the resource would be possible.

Appendix D: Biological Evaluation

BIOLOGICAL EVALUATION

for

Activities Related to

Job Number 080499

Gee Creek Strs. and Apprs. (S)

Ozark-St. Francis National Forest

Big Piney Ranger District

Johnson County, Arkansas

by

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PROJECT DESCRIPTION AND LOCATION

The Arkansas Department of Transportation (ARDOT) proposes to replace the Highway 123 bridge over Gee Creek (Bridge No. M1864) in Johnson County, see Figure 1. The project area is found in Township 12 North, Range 21 West, Section 19, and lies in the Dardanelle Reservoir Watershed (8-digit HUC 11110202) within the Lower Arkansas-Fourche La Fave Basin (6-digit HUC 111102).

Proposed improvements at Gee Creek consist of replacing the existing 41' x 23.5' bridge with a quadruple 12' x 9' x 62' three-sided box culvert, widening the travel lanes to 11' and adding 4' shoulders. Currently, the bridge has 10-foot travel lanes and two-foot shoulders. The three-sided box culvert will be replaced on a new location, from approximately 15 to approximately 76 feet downstream of the downstream edge of the existing bridge. The existing bridge will remain open during construction to maintain traffic. Once the new bridge is open to traffic, the existing bridge and its approaches will be demolished.

All disturbed areas will be seeded in accordance with the ARDOT's Special Seeding Special Provision, which includes three native grasses and seven native wildflower species. A cover crop is also included to obtain vegetative coverage while the other native species become established.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed project is to replace one bridge along Highway 123 over Gee Creek. The Gee Creek Bridge is considered to be in poor condition. In addition, this bridge is weight posted.

ALTERNATIVES CONSIDERED – NO ACTION

This alternative involves only maintenance activities on the Gee Creek Bridge. Maintenance activities may not be able to address all of the structural deficiencies and would not bring the bridge and approaches up to current design safety standards. No alternatives, other than the no build alternative, were considered.

PURPOSE AND NEED FOR THE BIOLOGICAL EVALUATION

This Biological Evaluation (BE) documents the potential effects of the proposed highway construction activities, including utility relocation and timber harvesting, on both known and potentially occuring populations and habitat of the OSFNF Proposed, Endangered, Threatened, and Sensitive species (PETS) (USDI FWS 1999). This BE was conducted in accordance with methods given in Forest Service Manual 2672.43 (USDA FS 2005c).

As part of the National Environmental Policy Act (NEPA) decision-making process, the BE provides a review of ARDOT's activities in sufficient detail to determine the potential affects of the proposed action on the listed PETS species. Objectives of the BE are as follows:

- to ensure that ARDOT's actions do not contribute to loss of viability of any native or desired non-native plant or animal species or contribute to trends toward Federal listing of any species.

- to comply with all requirements of the Endangered Species Act (ESA), that actions of federal agencies not put at risk or adversely modify critical habitat of federally listed species.

- to provide standardized procedures for evaluation of PETS species to ensure they receive full consideration in the decision-making process, so that no species is placed in jeopardy as a result of inadequate management actions.

- to adhere to the requirements of the Forest Service Manual 2672.43(USDA FS 2005c), which provides direction for the inventory of PETS species in preparation of site-specific BEs.

- to address any potential impacts from management activities and incorporate conservation measures related to known PETS habitat or potential habitat.

Only those PETS species known to occur or have suitable habitat in the action area will be considered in this BE, see ***Appendix A***.

Figure 1. Project location map

PROPOSED MANAGEMENT ACTIONS

Proposed management actions include the use of Best Management Practices (BMPs) outlined in the National Pollution Discharge Elimination System (NPDES) and Section 404, Clean Water Act permits. These BMPs ensure that construction related activities associated with the project will not have detrimental effects on the water quality within the watershed.

INVENTORY HISTORY

This BE is based on Arkansas Natural Heritage Commission (ANHC) 2010, 2016, and 2018 records database, Information for Planning and Conservation (IPaC) system, OSFNF PETS checklist (2018) from the Ozark-St. Francis National Forests, NatureServe Explorer Data (2020), and literature as cited for the various listed species known to occur on the OSFNF.

Based on the recommendation of the US Fish and Wildlife Service and the proximity of locality records, a summer presence/absence survey was conducted for federally listed bat species. A summer mist net bat survey was conducted from July 9-12, 2019 near the project area: at the Highway 123 bridge over Big Piney Creek and at the Highway 123 bridge over Haw Creek. A total of ten bats representing three species were captured, including four evening bats (*Nycticeius humeralis*), four red bats (*Lasiurus borealis*), and two big-brown bats (*Eptesicus fuscus*) (see Appendix C).

A vascular plant survey was conducted in 2017 by ARDOT Natural Resources Specialist Kayti Ewing. The results of the plant survey are included in ***Appendix B***. Other pertinent literature and information concerning PETS populations and habitats are used as cited.

CUMULATIVE EFFECTS

Current and planned Forest Service activities could have additional adverse impacts on these species; however, these cumulative effects would be minimal due to the fact that this species is protected under the Endangered Species Act (ESA) and the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Highway construction activities occurring within the OSFNF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the rural nature of the area, and the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur for any PETS species.

SPECIES CONSIDERED AND SPECIES EVALUATED

All PETS species will be evaluated and/or inventoried according to Forest Service Manual 2672.43 (USDA FS 2005c). All inventory and analysis for PETS species is based on "best available science." ***Appendix A*** lists the OSFNF PETS species and indicates whether or not each is known to occur within the action area. The status of each species within the Big Piney Ranger District and within the action area is based on a literature review of known surveys and information. As expressed for each species listed in ***Appendix A***, additional surveys are not needed at this time to provide more definitive information to improve the determination of effects on the evaluated PETS species.

EVALUATED SPECIES SURVEY INFORMATION

Based on the ANHC 2010, 2016, and 2018 records database, IPaC, NatureServe Explorer Data (2020), ARDOT field surveys, and other pertinent information as cited, seventeen PETS species are known to occur or may potentially occur within the action area. IPaC identified nine federally listed species to occur in the region: the threatened northern long-eared bat (*Myotis septentrionalis*), the endangered Ozark big-eared bat (*Corynorhinus townsendii ingens*), the endangered Indiana bat (*Myotis sodalis*), the endangered gray bat (*Myotis grisescens*), the threatened Missouri bladderpod (*Physaria filiformis*), the threatened Piping Plover (*Charadrius melodus*) and Red Knot (*Calidris canutus rufa*), and the endangered American burying beetle (*Nicrophorus americanus*). Only four federally listed species have the potential to occur in the project area (see ***Appendix A***). The other thirteen PETS species are considered sensitive by the USFS, and include one bird, three plant species, one fish species, one crayfish, two bats, one isopod, two insects, and two mussels (see ***Appendix A***). Only these seventeen species will be evaluated in this BE for potential impacts from the proposed actions.

ENVIRONMENTAL BASELINE AND EFFECTS OF PROPOSED MANAGEMENT ACTIONS

Each specific activity that is being considered will be evaluated to determine potential effects to the seventeen PETS species of concern in this BE. The specific activities were listed in the “

Project Description and Location" section above. The most likely *general* effects from the specific activities are as follows:

Highway Construction Activities:

- Would remove trees (forested habitat) from the site prior to other construction activities
- Would demolish the existing Gee Creek Bridge (potential roosting habitat)
- Would cause temporary soil disturbance from heavy equipment operation
- Could temporarily increase sedimentation by exposing soils susceptible to erosion before the action area could be revegetated
- Could impact or crush individual plants and animals on the ground directly by heavy equipment operation
- Would create small patches of early successional habitat through the conversion of forested tracts to highway rights-of-way

These activities can be grouped or simplified into the four following impacts:

- **Soil disturbance impacts**
- **Sedimentation impacts**
- **Heavy equipment impacts (includes bridge demolition)**
- **Creation of early successional habitat impacts (includes timber harvest)**

These four impacts will be evaluated below for the four federally listed and thirteen PETS species that are known to occur or may occur within the action area.

Gray bat *(Myotis grisescens)* – Endangered

The gray bat is found in 14 states across most of the southeastern United States. In Arkansas, the gray bat's range includes over 30 counties, mostly in the Ozark Highlands, Boston Mountains, Arkansas River Valley and Mississippi Alluvial Plain Ecoregions. Gray bats are year-round cave residents, although different caves are usually occupied in summer rather than winter. Few individuals are found outside of caves. They hibernate primarily in deep, vertical caves during winter, and roost in limestone karst caves along rivers in summer months. Foraging habitat occurs primarily over water such as along rivers and lakes, where they feed on aquatic insects, within intact forested interiors near summer caves (Moore et al. 2017, NatureServe 2020). Fukui et al. (2006) showed that an abundance of aquatic insects positively correlated to increased activity of riparian foraging bat species; therefore, loss of riparian vegetation or degradation of stream habitat quality may have negative effects on bat activities in riparian areas through the reduction of aquatic insects (food resources). Gray bat populations are threatened by a range of

stressors including disease, land use change, and direct human disturbance. Factors directly influencing this species include white-nose syndrome (WNS), winter and summer habitat modification, disturbance and destruction such as cave vandalism, and climate change (NatureServe 2020).

Surveys were conducted to determine presence or absence of the species from the project area. There are several known occurrence records in the project vicinity, but these are all along Big Piney Creek, a much wider foraging corridor, and gray bats are less likely to use the small riparian corridor along Gee Creek. Under the FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat, a Bridge/Structure Assessment was completed and obligatory avoidance and minimization measures were committed to as part of our Section 7 consultation for Indiana and northern long-eared bats. Mist net surveys near the project location in July of 2019 did not capture any gray bats (see appendix C), and the bridge assessment yielded no evidence of any bats using the Gee Creek Bridge (see Appendix C). A special provision will be included in the job to minimize effects to gray bats by limiting construction to daylight hours, 30 minutes after sunrise until 30 minutes before sunset.

Direct Effects

No direct effects are expected due to the distances of known occupied caves from the immediate project area and the special provision prohibiting tree clearing during the active season, April 1 through November 15. No evidence of bats using the bridge was observed; therefore, no direct effects are expected due to the heavy equipment impacts from demolishing the existing bridge.

Indirect Effects

Proposed construction activities will result in the conversion of approximately 1.7 acres of riparian forest (i.e., foraging habitat) to highway right-of-way. Temporary soil disturbance and sedimentation caused by construction activities could result in decreased water quality temporarily; however, sediment and erosion control BMPs will be in place to minimize these activities' effects on water quality and aquatic insect assemblages. This creation of early successional habitat and sedimentation could alter this species' foraging habitat; however, because they prefer open habitats in riparian zones, the increased width of the forest opening in the Gee Creek riparian zone could increase available, though marginal, habitat along this relatively small creek.

Determination of Effects

*The proposed highway construction activities "**may affect**" but are "**not likely to adversely affect**" gray bats. A bridge assessment was conducted and found no evidence of bats using the existing bridge; however, there are known occurrences near the project area. The project area is largely forested and contains suitable foraging habitat or corridors to the more optimal foraging habitat along Big Piney Creek. A daytime-construction-only special provision will accompany the job to minimize effects on gray bats.*

Indiana bat *(Myotis sodalis)* – Endangered

The Indiana bat is found in 24 states across most of the eastern United States. In Arkansas, the Indiana bat's range includes 27 counties, mostly in the Ozark Highlands, Boston Mountains, Arkansas River Valley and Crowley's Ridge Ecoregions. Indiana bats hibernate in caves during

winter (NatureServe 2020). In summer, Indiana bats are known to roost underneath the peeling bark of dead or dying trees in intact to semi-intact wooded areas, often along streams. Menzel et al. (2001) found that preferred tree roosts, across the species' range, were in dead snags in sunny openings because the crevices under the bark stayed warmer. Also, they're known to roost and forage in upland forests within 1 to 3 miles of small to medium rivers and streams and in riparian areas. The nearest known occurrences are 13 miles northeast of the project area in Newton County (ANHC 2018). Indiana bat populations are primarily threatened by WNS and disturbance of cave habitats by humans (NatureServe 2020).

The project area lies within the consultation area of the federally endangered Indiana bat. Mist net surveys following the USFWS Indiana bat summer survey guidelines were completed near the project location in July of 2019, and no Indiana bats were captured (see Appendix C). Under the FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat, a Bridge/Structure Assessment was completed and obligatory avoidance and minimization measures were committed to as part of our Section 7 consultation for Indiana and northern long-eared bats. During the bridge assessment, no evidence of bats using the Gee Creek Bridge was observed (see Appendix C).

Direct Effects

Tree clearing and bridge demolition could kill or injure roosting bats. There are no records of Indiana bats near the project area, and mist-net surveys near the project area did not capture any Indiana bats. In addition, no evidence of bats using the bridge was observed; therefore, no direct effects are expected due to tree removal and the removal of the existing bridge. Regardless, a special provision will be included in the job to minimize the likelihood of effects to Indiana bats by limiting construction to daylight hours, 30 minutes after sunrise until 30 minutes before sunset.

Indirect Effects

Proposed construction activities will result in the conversion of approximately 1.7 acres of forest to highway right-of-way, removing some potential roost trees. Temporary soil disturbance and sedimentation caused by construction activities could contribute to a temporary decrease in water quality, which could in turn affect aquatic insect assemblages. Erosion control BMPs will be in place to minimize sedimentation and potential indirect effects. The creation of early successional habitat could alter potential foraging habitat.

Determination of Effects

*The proposed highway construction activities "**may affect**" but are "**not likely to adversely affect**" Indiana bats under the FHWA Range-Wide Programmatic Biological Opinion (see Appendix C). A bridge assessment found no evidence of bats using the existing bridge. Suitable foraging and roosting habitat exists, but there are known occurrences nearby. ARDOT will include a special provision requiring that construction activities not occur 30 minutes prior to sunset and 30 minutes prior to sunrise. Erosion control BMPs will be applied to minimize sediment leaving the job site.*

Northern long-eared bat (*Myotis septentrionalis*) – Threatened

The northern long-eared bat is found in 37 states across most the eastern and north central United States. In Arkansas, the northern long-eared bat's range includes over 40 counties, mostly in the Ozark Highlands, Boston Mountains, Ouachita Mountains and the western part of South Central Plains Ecoregions. Hibernation primarily occurs in caves (USFWS 2011). Summer roosting and foraging habitat includes intact forested interiors with a large number of old trees, multiple forest strata and standing snags and woody debris. Foraging typically occurs within forests and along forest edges (NatureServe 2020). In Missouri, northern long-eared bats almost exclusively foraged in upland forested areas, rather than in floodplain and riparian forests (LaVal et al. 1980). In Iowa, this species was found primarily foraging in mature deciduous upland forests adjacent to riparian areas (Kunz 1973). Northern long-eared bat populations are threatened by a range of stressors including disease, land use change, and direct human disturbance. Factors directly influencing this species include WNS, winter and summer habitat modification, disturbance and destruction such as roost tree removal, cave vandalism and climate change (NatureServe 2020).

Mist net surveys following the USFWS Indiana bat summer survey guidelines were completed near the project location in July of 2019, and no northern long-eared bats were captured (see Appendix C). Under the FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat, a Bridge/Structure Assessment Form and a Northern Long-Eared Bat 4(d) Rule Streamlined Consultation were completed as part of our Section 7 consultation for Indiana and northern long-eared bats. No evidence of bats using the Gee Creek Bridge was observed during the bridge assessment.

Direct Effects

Tree clearing and bridge demolition could kill or injure roosting bats. This bat is known to forage more often in more upland areas rather than in riparian areas, mist-net surveys near the project area did not capture any northern long-eared bats, and no evidence of bats using the bridge was observed; therefore, no direct effects are expected due to tree removal and the removal of the existing bridge. This species has been documented within 0.5 miles of the project area, so it is possible that individuals of this species could be overlooked or not avoided during highway construction activities. Under the proposed construction activities, heavy equipment disturbance and noise associated with construction activities could temporarily disrupt potential foraging and roosting opportunities in the adjacent upland areas. A special provision will be included in the job to minimize the likelihood of effects to northern long-eared bats by limiting construction to daylight hours, 30 minutes after sunrise until 30 minutes before sunset.

Indirect Effects

Proposed construction activities will result in the conversion of approximately 1.7 acres of forest (i.e., foraging and roosting habitat) to highway right-of-way. The creation of early-successional habitat could alter insect assemblages and thereby affect this species' foraging opportunities.

Determination of Effects

*The proposed highway construction activities "**may affect**" but are "**not likely to adversely affect**" northern long-eared bats under the FHWA Range-Wide Programmatic Biological Opinion. The proposed highway construction project additionally meets the Final 4(d) Rule and*

is exempt from any take, according to the FHWA Indiana bat and northern long-eared bat programmatic and accompanying Biological Opinion. Avoidance and minimization measures incorporated into the job contract will include a daytime-construction-only special provision. A bridge assessment found no evidence of bats using the bridge. This species has been documented to occur near the project area, and there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.

Ozark big-eared bat (*Corynorhinus townsendii ingens*) - Endangered

The Ozark big-eared bat is found in the Ozark Plateau Region of Arkansas, Missouri and Oklahoma. In Arkansas, the range of the Ozark big-eared bat includes 20 counties, mostly in Ozark Highlands, Boston Mountains and Arkansas River Valley Ecoregions. Ozark big-eared bats inhabit caves year-round, which are typically located in karst regions dominated by oak-hickory forests. Weyandt et al. (2005) and Graening et al. (2011) suggest that Ozark big-eared bats could also use bluff faces and bluff lines as roosting habitat, and these types of habitats could potentially garner additional populations. Ozark big-eared bats may move among hibernacula during winter (NatureServe 2020). During the summer months, Ozark big-eared bats primarily forage in forests and along forest edges of streams and mountain slopes, typically only a little over a mile from their roosting sites (Graening et al. 2011, NatureServe 2020). Although, some tracking studies of Ozark big-eared bats documented bats traveling up to 5 miles in a 24-hour period (Graening et al. 2011, Wethington et al. 1996). Clark et al. (2002) found that the mean emergence time for Ozark big-eared bats was 25.7 minutes after sunset in both summer and winter months.

Arkansas Natural Heritage Commission's (ANHC) records database shows a single record of an Ozark big-eared bat in Newton County, 14 miles northeast of the project location (ANHC 2018). The nearest records of hibernacula are more than 30 miles to the west, in Franklin County.

Under the FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat, a Bridge/Structure Assessment Form was completed as part of our Section 7 consultation for Indiana and northern long-eared bats. No evidence of any bats using the Gee Creek Bridge was observed. Mist net surveys near the project location in July of 2019 did not capture any Ozark big-eared bats (Appendix C).

Direct Effects

There are no known roost caves near the project area, and no direct effects to roosts are expected due to the distances of known cave habitats and the lack of blasting during bridge construction. No evidence of any bats using the bridge was observed; therefore, no direct effects are expected due to the heavy equipment impacts from demolishing the existing bridge.

Indirect Effects

Proposed construction activities will result in the conversion of approximately 1.7 acres of forest to highway right-of-way. This conversion is not expected to affect this species foraging or roosting habitat

Determination of Effects

*The proposed highway construction activities will have "**no effect**" on Ozark big-eared bats. The nearest record of Ozark big-eared bats is 14 miles away, and mist-net surveys near the project area or on the Big Piney Ranger District have not captured any bats of this species. A bridge assessment found no evidence of bats using the existing bridge. ARDOT is anticipating that the new structure over Gee Creek will be a three-sided box culvert, and therefore no blasting or drilling that could disturb hibernating bats will be required during construction. ARDOT will commit to a daytime-construction-only special provision requiring that construction activities not occur after 30 minutes prior to sunset and before 30 minutes prior to sunrise.*

Boston Mountains Crayfish *(Cambarus causeyi)* – Sensitive

All but a few of the known populations of the Boston Mountains crayfish are located within the Boston Mountains ecoregion, with just a few populations known near the northern edge of the Arkansas Valley ecoregion. It occurs in Franklin, Madison, Newton, Pope, Searcy, and Stone Counties, but the majority of the known occurrences are in Johnson County (NatureServe 2020, ANHC 2018). This primary burrowing crayfish is most often found in association with springs and seepage areas (Robison and Leeds 1996). While Johnson County has the largest number of populations, all of the known occurrences are at least eight miles from the project area.

Direct Effects

There was a small area with persistent moisture in the project area during the plant surveys. This could be a seepage area, but may also represent a small basin with poor drainage. Though the Boston Mountains crayfish is not known from the project area, suitable habitat may occur. Under the proposed construction activities, operation of heavy equipment during bridge construction could crush individuals.

Indirect Effects

Under the proposed activities, temporary soil disturbance, creation of early successional habitat and sedimentation may alter this species' preferred habitat.

Determination of Effects

*The proposed highway construction activities "**may impact individuals but are not likely to cause a trend to federal listing or loss of viability**" for the Boston Mountains crayfish. Although the species is not known to occur near the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Eastern small-footed bat *(Myotis leibii)* – Sensitive

The eastern small-footed bat is found in southeastern Canada and in 20 states of the eastern United States. In Arkansas, its range includes much of northern and western Arkansas. Known occurrences are recorded from Crawford, Logan, Franklin, Searcy and Newton Counties (ANHC 2016, 2016). The eastern small-footed bat has mostly been recorded hibernating in caves in winter, near the entrance. This species exhibits a high degree of fidelity to hibernacula (NatureServe 2020). Warm-season roosts are primarily in cracks and crevices of rocky outcrops but have also been found in buildings, bridges, and hollow trees, underneath loose bark, in road cuts, and in caves. Generally roosts are often exposed to the sun but may be under mid to high canopy cover (NatureServe 2020). This species relies heavily on rock roosts during the summer

months. Long distance migrations have not been documented with the eastern small-footed bat; summer roost sites may be as close as 0.1 km from winter hibernacula. This bat species' foraging habitat includes riparian forests, upland forests, clearings and ridgetops (NatureServe 2020). These bats have been observed travelling from 0.8 to 13.2 km between day roosts and foraging sites (USFWS 2013a). According to the ANHC records database (2018), an eastern small-footed bat was captured less than two miles northeast of the project area in 2011. Mist net surveys near the project location in July of 2019 did not capture any eastern small-footed bats (Appendix C), and the bridge assessment yielded no evidence of any bats using the Gee Creek Bridge (Appendix C). The most serious threat to the eastern small-footed bat, like most other bats in the eastern US, is WNS.

Direct Effects

Under the proposed construction activities, operation of heavy equipment during bridge construction could temporarily disrupt foraging opportunities. A special provision limiting work to daylight hours will make direct effects from tree clearing unlikely. There was no evidence of bats using the existing bridge, and no direct effects are expected to occur during demolition of the existing structure.

Indirect Effects

Under the proposed activities, tree clearing activities would result in the creation of early successional habitat, which could remove potential foraging and roosting habitat. Temporary soil disturbance and sedimentation could lead to a temporary decrease in water quality, which could affect aquatic insect assemblages, and indirectly affect foraging opportunities for eastern small-footed bats.

Determination of Effects

*The proposed highway construction activities "**may impact individuals but are not likely to cause a trend to federal listing or loss of viability**" for the eastern small-footed bat. Although the species was not detected near the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Isopod *(Lirceus bicuspidatus)* – Sensitive

This isopod is endemic to 12 Arkansas Counties: Independence, Jackson, Johnson, Logan, Madison, Marion, Newton, Perry, Pope, Pulaski, Saline, Searcy, Stone and Yell (NatureServe 2020). The nearest known occurrences are in Johnson County, near Clarksville, 17 miles from the project area. This isopod inhabits a variety of aquatic habitats from small seeps, springs, streams and cave streams. There is not much more known concerning the biology of this species, although it has a fairly large range in mountainous regions (Robison and Allen 1995).

Direct Effects

Although this species is not known to occur in the project area, there is potential habitat present. Under the proposed activities, no direct effects are expected.

Indirect Effects

Under the proposed activities, operation of heavy equipment, temporary soil disturbance and sedimentation could temporarily disturb aquatic habitat by reducing water quality, which this

isopod could be susceptible to. Known downstream populations are not likely to be impacted from proposed construction activities due to distance from the project. Creation of early successional habitat should have no effect.

Determination of Effects

*The proposed highway construction activities "**may impact individuals but are not likely to cause a trend to Federal listing or loss of viability**" for the isopod,* Lirceus bicuspidatus. *The species is not known to occur in the project area. Although this species is not known to occur within the project area, there is potential habitat present; therefore, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Longnose darter (*Percina nasuta*) - Sensitive

The longnose darter is found in the St. Francis, White, Arkansas and Ouachita River drainages in the Ozark and Ouachita Mountains of Arkansas, southern Missouri and eastern Oklahoma. In Arkansas, the longnose darter has been found in Lee Creek, Frog Bayou, Mulberry River, upper White River, War Eagle Creek, Big Piney Creek, Illinois Bayou Drainage, Ouachita River, Caddo River and the South Fourche La Fave River (Robison and Harp 1988, NatureServe 2020). The longnose darter is known from 12 Arkansas counties, including Johnson County, and has been documented from several stretches of Big Piney Creek near the project area (ANHC 2018). The longnose darter can be found in small to medium sized rivers with clear water. It inhabits gravel riffles in the spring and slower moving water over sand and silt in the fall (NatureServe 2020). Longnose darter populations are susceptible to habitat alteration from stream impoundments and any activities leading to reduced water quality. Historical declines were due to habitat modifications resulting from reservoir construction (NatureServe 2020).

Direct Effects

The longnose darter occurs in Big Piney Creek, about two miles downstream of the project area, via Haw Creek. This species has not been documented from any smaller tributaries to Big Piney Creek, and is most likely limited to larger creeks and small rivers. Direct effects to the longnose darter are not expected.

Indirect Effects

Under the proposed activities, temporary soil disturbance and sedimentation are not likely to alter this species' habitat downstream. Downstream population is about two miles away so increased turbidity in Big Piney Creek is unlikely, especially with erosion control BMPs in place to minimize sedimentation.

Determination of Effects

*The proposed highway construction activities "**may impact individuals but are not likely to cause a trend to federal listing or loss of viability**" on the longnose darter. Proposed construction activities could result in temporary soil disturbance and sedimentation leading to a decrease in water quality; however, sedimentation is unlikely to be significant two miles downstream in Big Piney Creek, especially with erosion control BMPs employed to minimize sedimentation.*

Monarch Butterfly *(Danaus plexippus)* – Sensitive

Monarch butterflies range across the United States and the southern Canadian provinces (NatureServe 2020). In Arkansas, Monarchs are all members of the eastern population that overwinters in Mexico which has seen a severe decline of up to 90% during recent decades (NatureServe 2020). Various factors have been considered as the primary driver of this decline, including deforestation of the overwintering habitat in Mexico and direct mortality from neonicotinoid pesticides. There is good evidence, however, that the primary driver is the loss of milkweeds, the primary larval host plants, to agriculture and herbicide use across the Midwest (Pleasants and Overhauser 2013). Monarchs are rare in Arkansas during the summer, but nectar resources within Arkansas are important to fall-migrating Monarch butterflies (Rudolph et al. 2006). Monarchs are known to breed in the southern states during the spring migration, with adults from Mexico generally not reaching further north than Texas (NatureServe 2020), so migrating monarchs may use ONF milkweeds during the spring. The vascular plant survey (Appendix B) found four-leaf milkweed (*Asclepias quadrifolia*), a common forest understory plant in the Ozark Mountains.

Direct Effects

Small openings, like the area around Gee Creek along Highway 123, are not primary habitat for the monarch butterfly, though they may be important during migration. It is possible that individuals could travel through this area and may even deposit eggs on four-leaf milkweed. Under the proposed construction activities, the operation of heavy equipment during bridge construction could crush adult or larval monarch butterflies.

Indirect Effects

The proposed activities will create a larger canopy opening around Gee Creek and promote early-successional ruderal communities. This may reduce habitat availability for four-leaf milkweed and thus reduce larval habitat, but will increase nectar availability for adult monarch butterflies and may provide colonization opportunities for other, full-sun milkweed species.

Determination of Effects

*The proposed highway construction activities "**may impact individuals but are not likely to cause a trend to federal listing or loss of viability**" for the monarch butterfly. The species could occur in the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Nearctic Paduniellan caddisfly (*Paduniella neartica*) – Sensitive

The nearctic paduniellan caddisfly has been documented from only Johnson and Washington Counties in Arkansas (ANHC 2018), but it is suspected to occur in Missouri (NatureServe 2020) and may have a broader distribution in Arkansas. The nearest known population to the project area was found in Granny Creek, 11 miles to the south. The ecology and precise habitat is unknown, but ANHC records indicate that this species was found in clear, spring-fed, high-gradient streams with a gravel-bottom (NatureServe 2020 and ANHC 2018).

Direct Effects

There is no record of this species within the project area; however, suitable habitat exists and occurrence data for this species could be scarce due to the area being under-surveyed. Although

this species is not known to occur in the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities, given the suitable habitat available. Under the proposed activities, sedimentation and operation of heavy equipment could directly impact individuals. Operation of heavy equipment could crush individuals. Temporary soil disturbance and creation of early successional habitat should not have any direct effects on this species.

Indirect Effects

Under the proposed activities, operation of heavy equipment, temporary soil disturbance and creation of early successional habitat may alter this species' preferred habitat by temporarily decreasing water quality and increasing turbidity.

Determination of Effects

*The proposed highway construction activities "**may impact individuals but are not likely to cause a trend to Federal listing or loss of viability**" for the nearctic paduniellan caddisfly. The caddisfly is known to occur within the project area; however, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities, given the suitable habitat present.*

Purple Lilliput (*Toxolasma lividum*) – Sensitive

This species is found primarily in the Ozark Plateau Region of southern Missouri and northern Arkansas (NatureServe 2020). Habitat includes small to medium clear, upland rivers with high gradient and permanent strong flow. This species is commonly found near riffles, usually just below, in slight to moderate current, in runs and flowing pools, over gravel, cobble or sand stream bottoms (NatureServe 2020). It is known from rivers and large streams like War Eagle Creek, the Buffalo River, and Illinois Bayou (ANHC 2018). The nearest known populations are in Big Piney Creek, documented less than 1.5 miles both upstream and downstream of the confluence of Haw Creek (which Gee Creek flows into). Habitat destruction, modification and fragmentation of habitat from impoundments with cold water releases had been identified as the primary threat affecting their populations. Additional threats include increases in turbidity and siltation due to surrounding land uses (NatureServe 2020).

Direct Effects

This species is unlikely to occur in a stream as small as Gee Creek in the project area. Under the proposed activities, no direct effects on this species are expected.

Indirect Effects

Under the proposed activities, temporary soil disturbance during construction could temporarily increase turbidity by introducing sediment into Gee Creek. An increase in turbidity is unlikely to impact known populations downstream in Big Piney Creek due to the distance from the project to occupied habitats; furthermore, proper installation and maintenance of erosion control BMPs will minimize sediment leaving the site and entering Gee Creek.

Determination of Effects

*The proposed highway construction activities "**may impact individuals but are not likely to cause a trend to federal listing or loss of viability**" on the purple lilliput. There is no suitable*

habitat for this species in the project area, and sedimentation from temporary soil disturbance is unlikely to affect Big Piney Creek, two miles downstream, especially with erosion control BMPs in place.

Tricolored bat *(Perimyotis subflavus)* – Sensitive

The tricolored bat has a large range across eastern North America, into the Plains States, and down into Central America (NatureServe 2020, Moore 2018). Populations within the area affected by WNS, and it is considered vulnerable to critically imperiled in most states and provinces within its range (NatureServe 2020). It is classified as secure in Arkansas (NatureServe 2020), but declines have already been documented (Moore 2018). It has been found in many Arkansas Counties, including most of the Ozark and Ouachita regions, including much of the Big Piney Ranger District. This small bat roosts in tree canopies during the summer, often in bundles of dead deciduous leaves (Moore et al 2018), and can travel as much as six to ten miles to forage over lakes and rivers. It hibernates in warmer and more humid sites in caves, mines, and culverts than other bats, which could increase its susceptibility to WNS, especially in colder regions. It also sees significant mortality at wind turbines used for energy generation (NatureServe 2020).

Direct Effects

No tricolored bats were found in 2019 mist-netting surveys near the project area (Appendix C), though a regional mist-netting survey did capture some individuals within a few miles of the project area (Johnson 2010). Gee Creek is relatively small, with small pools, and is not likely to be suitable foraging habitat. It is possible that tree-clearing activities could injure or kill individuals, because some of the trees to be cleared may provide daytime roosts for tricolored bats during the summer. Heavy equipment and construction activities could disturb foraging bats or bats traveling to larger waterbodies to forage. A daytime-only-construction special provision will be applied to the job to prevent disturbance to bats.

Indirect Effects

Under the proposed activities, tree clearing activities would result in the creation of early successional habitat, which could remove potential foraging and roosting habitat. Temporary soil disturbance and sedimentation could lead to a temporary decrease in water quality, which could affect aquatic insect assemblages, and indirectly affect foraging opportunities for the tricolored bat.

Determination of Effects

*The proposed highway construction activities "**may impact individuals but are not likely to cause a trend to federal listing or loss of viability**" for the tricolored bat. Although the species was not detected near the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Western fanshell *(Cyprogenia aberti)* – Sensitive

The western fanshell occurs in Arkansas, Missouri, and Kansas, and is believed to have been extirpated from Oklahoma, Louisiana, and Mississippi. In Arkansas, the vast majority of populations occur in the White, Spring, and Strawberry Rivers in northeastern Arkansas, with some occurrences in the Buffalo River and War Eagle Creek in Northwest Arkansas. The only

record in the Arkansas River drainage within the state of Arkansas occurs in big Piney Creek, 19 miles downstream of where Haw Creek flows into Big Piney Creek (ANHC 2018). This species is restricted to riffles in medium-sized rivers on a variety of substrates including rock, gravel, and mud, with most populations known from relatively shallow riffles with clean gravel and sand substrate (NatureServe 2020).

Direct Effects

This species is found only in medium-sized rivers, and would not be found in a stream as small as Gee Creek in the project area, or even in Haw Creek, just downstream. Under the proposed activities, no direct effects on this species are expected.

Indirect Effects

Under the proposed activities, temporary soil disturbance and sedimentation may temporarily decrease water quality and increase turbidity by unavoidably introducing sediment into Gee Creek during construction, but this disturbance would not affect any potential habitat for this species due to area affected, duration of effects, installation of erosion BMPs and distance downstream to potential habitat.

Determination of Effects

*The proposed highway construction activities will have "**no impact**" on the western fanshell. This species is not known to occur in the project area, and potential habitat is only present several miles downstream.*

CONSULTATION HISTORY WITH THE U.S. DEPARTMENT OF THE INTERIOR – U.S. FISH AND WILDLIFE SERVICE

Four federally listed species are known to occur in or near the proposed action area: the endangered gray bat (*Myotis grisescens*), the endangered Indiana bat (*Myotis sodalis*), the endangered Ozark big-eared bat (*Corynorhinus townsendii ingens*), and the threatened northern long-ear bat (*Myotis septentrionalis*). Based on the findings of this document as well as previous consultation between the USFWS, a determination of 'may affect, not likely to adversely affect' is appropriate for the gray bat, Indiana bat, Ozark big-eared bat, and northern long-eared bat. Concurrence will be sought from the US Fish and Wildlife Service.

COORDINATION HISTORY WITH THE U.S. ARMY CORPS OF ENGINEERS

The proposed construction activities will require excavation or discharge of dredged or fill material into jurisdictional waters of the U.S.; thus, an USACE issued permit under the Section 404 of the Clean Water Act will need to be obtained for this project. A permit application will be submitted to the Little Rock District for this project.

DETERMINATION OF EFFECTS

Based on the preceding documentation, discussions, and "best available science," the "determination of effects" for the proposed actions are as follows:

Proposed, Threatened and Endangered Species

___X_ **No Effect**

_____ **May affect, Not likely to adversely affect**

_____ **Likely to adversely affect**

***Ozark big-eared bat**: The proposed highway construction activities will have "**no effect**" on Ozark big-eared bats. The nearest record of Ozark big-eared bats is 14 miles away, and mist-net surveys near the project area did not capture any bats of this species. A bridge assessment found no evidence of bats using the existing bridge. ARDOT is anticipating that the new structure over Gee Creek will be a three-sided box culvert, and therefore no blasting or drilling that could disturb hibernating bats will be required during construction. ARDOT will commit to a day-time-construction-only special provision requiring that construction activities not occur after 30 minutes prior to sunset and before 30 minutes prior to sunrise.*

Proposed, Threatened and Endangered Species

_____ **No Effect**

___X__ **May affect, Not likely to adversely affect**

_____ **Likely to adversely affect**

***Gray bat**: The proposed highway construction activities "may affect" but are "not likely to adversely affect" gray bats. Additionally, a bridge assessment was conducted and found no evidence of bats using the existing bridge; however, there are known occurrences within the project area. The project area is largely forested and contains suitable foraging habitat; therefore, a daytime-construction-only special provision will accompany the job to minimize effects on gray bats. There is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

***Indiana bat**: The proposed highway construction activities "may affect" but are "not likely to adversely affect" Indiana bats under the FHWA Range-Wide Programmatic Biological Opinion (see Appendix C). A bridge assessment found no evidence of bats using the existing bridge. Suitable foraging and roosting habitat exists, but there are known occurrences nearby. ARDOT will include a special provision requiring that construction activities not occur 30 minutes prior to sunset and 30 minutes prior to sunrise. Erosion control BMPs will be applied to minimize sediment leaving the job site.*

***Northern long-eared bat**: The proposed highway construction activities "may affect" but are "not likely to adversely affect" northern long-eared bats under the FHWA Range-Wide Programmatic Biological Opinion. The proposed highway construction project additionally meets the Final 4(d) Rule and is exempt from any take, according to the FHWA Indiana bat and northern long-eared bat programmatic and accompanying Biological Opinion. Avoidance and minimization*

measures incorporated into the job contract will include a daytime-construction-only special provision will be incorporated into the job contract. A bridge assessment found no evidence of bats using the bridge. This species has been documented to occur near the project area, and there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.

Sensitive Species

_____ No impact

_____ Beneficial impact

___X___ May impact individuals but is not likely to cause a trend to federal listing or loss of viability:

***Boston Mountains crayfish**: The proposed highway construction activities "may impact individuals but are not likely to cause a trend to federal listing or loss of viability" for the Boston Mountains crayfish. Although the species is not known to occur near the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

***Eastern small-footed bat**: The proposed highway construction activities "may impact individuals but are not likely to cause a trend to federal listing or loss of viability" for the eastern small-footed bat. Although the species was not detected near the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

***Isopod**: The proposed highway construction activities "may impact individuals but are not likely to cause a trend to Federal listing or loss of viability" for the isopod,* Lirceus bicuspidatus. *The species is not known to occur in the project area. Although this species is not known to occur within the project area, there is suitable habitat present; therefore, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

***Longnose darter**: The proposed highway construction activities "**may impact individuals but are not likely to cause a trend to federal listing or loss of viability**" on the longnose darter. Proposed construction activities could result in temporary soil disturbance and sedimentation leading to a decrease in water quality; however, sedimentation is unlikely to be significant two miles downstream in Big Piney Creek, especially with erosion control BMPs employed to minimize sedimentation.*

***Monarch Butterfly**: The proposed highway construction activities "may impact individuals but are not likely to cause a trend to federal listing or loss of viability" for the monarch butterfly. The species could occur in the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

***Nearctic Paduniellan caddisfly**: The proposed highway construction activities "may impact individuals but are not likely to cause a trend to Federal listing or loss of viability" for the nearctic paduniellan caddisfly. The caddisfly is known to occur within the project area; however, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities, given the suitable habitat present.*

***Tricolored Bat**: The proposed highway construction activities "may impact individuals but are not likely to cause a trend to federal listing or loss of viability" for the tricolored bat. Although the species was not detected near the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Sensitive Species

___X___ No impact

_____ Beneficial impact

_____ May impact individuals but is not likely to cause a trend to federal listing or loss of viability:

***Western fanshell**: The proposed highway construction activities will have "no impact" on the western fanshell. This species is not known to occur in the project area, and suitable habitat is only present several miles downstream.*

August 6, 2020

Joe Ledvina Date

Botanist, ARDOT Environmental Division

Reviewed by:

8/14/2020

X

Signed by: RONALD RAMBO

Dwayne Rambo Date

Big Piney Ranger District Wildlife Biologist

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APPENDIX A: REGIONAL FORESTER'S SENSITVE SPECIES LIST.

Bold type indicates those species reviewed in the BE due to occurrence or potential habitat.

PETS Species Checklist

Survey Needs Based on FSM 2672.43(USDA FS 2005c)

Proposed, Endangered, Threatened, and Sensitive Species List

(Ozark Portion of the Ozark-St. Francis National Forest Only)

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
FEDERALLY ENDANGERED and THREATENED SPECIES				
American burying beetle	*Nicrophorus americanus*	E	No	Occurrence is not expected; project area lies outside designated American Burying Beetle Consultation Area (USFWS Consultation Area Shapefile 2012). A **"no effect"** determination was made.
Cave Crayfish	*Cambarus aculabrum*	E	No	Does not occur on the Big Piney Ranger District. Known occurrences are located in two caves in Benton County, Arkansas (NatureServe 2020).
Gray Bat	***Myotis grisescens***	**E**	**Yes**	Known to occur on the Big Piney Ranger District. (ANHC 2018). Was not found during mist-netting surveys near the project area (Appendix C). Suitable foraging and roosting habitat is present.
Harperella (plant)	*Ptilimnium nodosum*	E	No	Not reported on the OSFNF and is not known to occur in project area (Witsell and Baker 2011, USDA-FS 2005b, ANHC 2018, NatureServe 2020). It is thought that the Boston Mountains could have suitable habitat for this species based on similar geology to where it is found; however, an extensive plant survey of the project area has revealed nothing.
Hell Creek Cave Crayfish	*Cambarus zophonastes*	E	No	Does not occur on the Big Piney Ranger District. Known occurrences are located in two caves in Marion and Stone County, Arkansas (NatureServe 2020).
Indiana bat	***Myotis sodalis***	**E**	**Yes**	Known to occur on the Big Piney Ranger District (ANHC 2018). Was not found during mist-netting surveys near the project area (Appendix C). Suitable foraging and roosting habitat is present.
Least Tern (bird)	*Sternula antillarum*	E	No	Nests on sandbars of large rivers (USFWS 2013). Suitable habitat not available in project area.
Missouri bladderpod (plant)	*Physaria (Lesquerella) filiformis*	T	No	Not reported on the OSFNF, not known from the project area. Closest known location is Washington County (Witsell 2006). Known from shale, sandstone, limestone and dolomite glades; such habitat does not exist in project area. A **"no effect"** determination was made.

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Neosho Mucket mussel	*Lampsilis rafinesqueana*	E	No	Not known to occur on the Big Piney Ranger District. Known occurrences and critical habitat designations on the Illinois River in Benton and Washington County (NatureServe 2020, USFWS Critical Habitat Shapefile 2015).
Northern long-eared bat	***Myotis septentrionalis***	**T**	**Yes**	Previously thought to be common forest-wide, a recent precipitous decline is attributed to WNS. Known to occur near the project area (ANHC 2018), but not found during 2019 mist-netting surveys (Appendix C).
Ozark Big-eared Bat	***Corynorhinus townsendii ingens***	**E**	**Yes**	Known from the Big Piney Ranger District, and project is within its range; however, there are no known occurrences near the project area. The closest known occurrence is in Newton County (ANHC 2018), and it was not found during 2019 mist-netting surveys (Appendix C).
Ozark Cavefish	*Troglichthys (Amblyopsis) rosae*	T	No	Not known from the Big Piney Ranger District. Known from nine caves in Benton County, Arkansas (USFWS 5-year Review 2011, NatureServe 2020).
Ozark hellbender	*Cryptobranchus alleganiensis bishopi*	E	No	This species is not known to occur in the Big Piney Ranger District or the project area. Known occurrences are in Baxter, Fulton, Independence, Izard & Randolph Counties in Arkansas (NatureServe 2020).
Pink Mucket	*Lampsilis abrupta*	E	No	Not recorded on the OSFNF. Known from White River, Black River, Ouachita River, Saline River, Little Missouri River (Harris et al. 2009, NatureServe 2020).
Piping Plover	*Charadrius melodus*	T	No	During fall and spring migration, they use rest sites including shore lines of lakes, rivers, and wetlands with muddy and sandy substrates. Migration rest area habitat is not well documented, but, in Arkansas, they are usually found along the Arkansas River. Similar habitat is not present in the project area. A **"no effect"** determination was made.
Red Knot	*Calidris canutus rufa*	T	No	Suitable migration stopover habitat includes marshes, sand dunes or sandbars (NatureServe 2020), which do not occur in the project area. A **"no effect"** determination was made.
Eastern Black Rail	*Laterallus jamaicensis ssp. jamaicensis*	P	No	No suitable herbaceous marsh habitat (NatureServe 2020) occurs in the project area. A **"no effect"** determination was made.
Rabbitsfoot mussel	*Theliderma cylindrica (Quadrula cylindrica cylindrica)*	T	No	Does not occur within or downstream from the project area (Harris et al. 2009, USDI-FWS 2012). Populations occur in Spring and Black River Drainages; Illinois River, War Eagle Creek, and Buffalo River.
Scaleshell mussel	*Leptodea leptodon*	E	No	Not recorded on the OSFNF. Closest known occurrence is a record in Frog Bayou, near Rudy in Crawford County (Harris et al. 2009, NatureServe 2020, ANHC 2018).
Snuffbox	*Epioblasma triquetra*	E	No	This species is not known to occur in the Big Piney Ranger District. Known from Baxter, Independence, Izard, Lawrence, Marion, Randolph & Sharp Counties in Arkansas (NatureServe 2020).

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Speckled Pocketbook mussel	*Lampsilis streckeri*	E	No	Not known to occur on OSFNF. Known from Cleburne, Searcy, Stone and Van Buren Counties in Arkansas (NatureServe 2020). Only known from the Upper Little Red Watershed.
Spectaclecase mussel	*Margaritifera (Cumberlandia) monodonta*	E	No	Not known to occur on the Big Piney Ranger District. Known occurrences on lower Ouachita River and Mulberry River (Harris et al. 2009, Williams et al. 2017, NatureServe 2020).
Yellow-cheek darter	*Etheostoma moorei*	E	No	Critical habitat is designated outside of OSFNF. Known to occur in Searcy, Stone and Van Buren Counties in Arkansas (NatureServe 2020). Not known to occur in the project area.
FOREST SERVICE SENSITIVE SPECIES - ANIMALS				
Bachman's Sparrow	*Peucaea (Aimophila) aestivalis*	S	No	Prefers mature to old-growth open pine forest that has been subjected to fires creating a well-developed herbaceous layer with limited shrub and midstory cover (NatureServe 2020). Habitat not found in project area.
Boston Mountains Crayfish	*Cambarus causeyi*	S	**Yes**	Known from springs and roadside seepages in Franklin, Johnson, Madison, Newton, Pope, Searcy, and Stone Counties (NatureServe 2020). There are several known occurrences in Johnson County, with the closest one being ~7.0 miles southwest from the project area. There is a roadside seepage area (may just be poor drainage, not associated with seep/spring) near the Haw Creek Falls Recreation Area.
Eastern small-footed bat	*Myotis leibii*	S	**Yes**	Forages near riparian areas and water sources, canopy openings, and near field edges. Suitable habitat does occur in the project area. Known mainly from Newton, Searcy, Stone, and Franklin Counties, but they are scattered throughout the Big Piney Ranger District (Saugey et al. 1993, ANHC 2018). Was not found during mist-netting surveys near the project area (Appendix C).
Henslow's Sparrow	*Passerculus henslowii*	S	No	Breeding habitat range includes Benton, Franklin, Fulton, and Washington Counties; non-breeding or migratory habitat range includes Ashley, Bradley, Calhoun, Cleveland, Drew, Hempstead, Monroe, Prairie, and Pulaski Counties Breeding habitat is characterized by open fields and meadows interspersed with shrubby vegetation, especially in low-lying areas. Known to use unmown hayfields. It is not known to occur in Johnson County.
Isopod (no common name)	*Lirceus bicuspidatus*	S	**Yes**	No records in project area. ANHC records indicate occurrences in Independence, Johnson, Logan, Newton, Searcy, Stone, and Yell Counties (ANHC 2018). Closest known occurrences are in southern Johnson County, near Clarksville. Arkansas Endemic (Robison and Allen 1995, Robison et al. 2008). Suitable habitat; e.g., seeps and springs exist in the project area. May just be poor drainage, see above.

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Longnose darter	*Percina nasuta*	S	**Yes**	Does occur just downstream of the project area in Big Piney Creek (ANHC 2018). Habitat includes silt-free upland large streams and small rivers with cobble and gravel bottoms (NatureServe 2020).
Monarch butterfly	*Danaus plexippus*	S	**Yes**	Thought to be forest-wide. Habitat is complex for this species, but the Ozarks are known to be major migratory stopovers for Monarchs traveling both northwards and back southwards. Breeding areas are virtually all patches of milkweed, while spring and fall migratory habitat is largely dependent on nectar sources, such as wildflowers (NatureServe 2020).
Mount Magazine shagreen	*Inflectarius (Mesodon) magazinensis*	S	No	Restricted to one steep talus slope in rich mesic hardwood forests on Mt. Magazine in Logan County (NatureServe 2020).
Nearctic Paduniellan caddisfly	*Paduniella nearctica*	S	**Yes**	Known from the Big Piney Ranger District and Johnson County. Closest known occurrence is ~11.0 miles south near Hagarville (ANHC 2018). Suitable habitat includes clear, spring-fed, high-gradient, gravel-bottomed creeks to medium-sized rivers.
Ozark shiner	*Notropis ozarcanus*	S	No	Known from the Big Piney Ranger District. Closest known occurrences are in Newton County, in the Buffalo River (ANHC 2018). Suitable habitat includes small to medium clear rivers with high gradient and permanent strong flows (NatureServe 2020). Suitable habitat exists within the project area; however, it is not known to occur in Johnson County.
Purple Lilliput	*Toxolasma lividum*	S	**Yes**	Known from the Big Piney Ranger District. Known from Big Piney Creek, just upstream from the project area (ANHC 2018). Habitat includes headwater streams and small- to medium-sized rivers of various substrates (NatureServe 2020).
Rafinesque's Big-eared Bat	*Corynorhinus rafinesquii*	S	No	Known from the Big Piney Ranger District (Pope County) (NatureServe 2020, ANHC 2018). Winter habitat, in the northern mountain regions, most often occurs in caves or similar sites. Winter habitat in the south is poorly known, but usually this species in not found in caves; e.g., in the coastal plain, they use hollow trees for winter roosts. In Arkansas, these bats are frequently found in cisterns and wells rather than caves. Summer roosts often are in hollow trees, under bridges, or in culverts in or near wooded areas (NatureServe 2020). Although suitable foraging and roost habitat exists in the project area; they are not known to occur in Johnson County, and were not captured in mist-net surveys near the project area (Appendix C).
Regal fritillary	*Speyeria idalia*	S	No	Not known from the Big Piney Ranger District. It is only known to occur in Benton and Washington Counties. (NatureServe 2020).
Slippershell	*Alasmidonta viridis*	S	No	Known from the Big Piney Ranger District: Buffalo River (Newton County). Also known from the South Fork of the Spring River (Fulton County), Caddo River (Pike County), and the White River (Independence County). Not known from the project area.

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Southeastern myotis	*Myotis austroriparius*	S	No	Known from southern and eastern Arkansas (NatureServe 2020). The St. Francis portion of the Ozark-St. Francis National Forests is part of this species range. Not known from the project area.
Southern cavefish	*Typhlichthys subterraneus*	S	No	Not known from the Big Piney Ranger District (ANHC 2018). Known from cave streams in eastern Ozarks—Baxter, Fulton, Randolph, and Stone Counties (NatureServe 2020).
Tricolored bat	*Perimyotis subflavus*	S	**Yes**	Known to occur on the Big Piney Ranger District. Range is statewide. It has only been reported from surrounding counties: Franklin, Madison, Newton, and Pope Counties (Perry et al. 2018), but it has been known to travel up to 10 miles from daytime roosts to forage (Perry et al. 2018). Forages near trees and along waterways. Hibernation site are often in caves. Suitable foraging habitat exists in the project area, but it was not documented during 2019 mist-net surveys (Appendix C).
Western Fanshell	*Cyprogenia aberti*	S	**Yes**	Known from the Big Piney Ranger District. This species is known from Big Piney Creek, but downstream from project area in Pope County. Other nearby occurrences include the Buffalo River (Marion, Newton, and Searcy Counties.) and War Eagle Creek (Madison County). Habitat includes medium-sized rivers with rock, gravel, and soft mud bottoms (NatureServe 2020).
Williams' crayfish	*Orconectes williamsi*	S	No	In Arkansas, most records are from extreme headwater streams in the White River drainage, but its range has been expanded to the Arkansas River Drainage (Wagner et al. 2010). Closest known occurrences are in the Frog-Mulberry and Beaver Reservoir Hydrologic Units, and they are not known from the Dardanelle Reservoir HUC (ANHC 2016). Suitable habitat includes gravelly, headwater creeks, cave streams, and pools of larger substrates (NatureServe 2020).
FOREST SERVICE SENSITIVE SPECIES - PLANTS				
Alabama snow-wreath	*Neviusia alabamensis*	S	No	Known from Conway, Faulkner, Newton and Pope Counties Suitable habitat includes riparian areas, forested bluffs, talus slopes, & streambanks on various substrates, soil types, & aspects (NatureServe 2020). The species has a restrictive range, and it was not found in 2017 field surveys.
Bay starvine	*Schisandra glabra*	S	No	Known only from the St. Francis portion of the Ozark-St. Francis National Forest.
Bush's poppymallow	*Callirhoe bushii*	S	No	Not known from the Big Piney Ranger District. Found in Benton, Carroll, Logan, Marion, Van Buren, and Washington Counties (ANHC 2018). Suitable habitat includes highway rights-of-way, fencerows, rocky open woods, and edges of limestone glades.

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Butternut	*Juglans cinerea*	S	No	Known only from the Sylamore Ranger District (ANHC 2018). Suitable habitat includes rich, mesic forests, lower slopes, ravines, banks and terraces of creeks and streams and floodplain forests (NatureServe 2020). Although suitable habitat exists in the project area, this species is not known from Johnson County and was not found during field surveys in 2017. The closest localities are in Newton and Searcy Counties.
Church's wildrye	*Elymus churchii*	S	No	Not known from the Big Piney Ranger District. This species is known to occur in Benton, Carroll, Logan, Montgomery, Polk, and Scott Counties. Habitat includes pine-oak forest/woodland on dry, rocky, and basic soils in open woods and on ridges, bluffs, and river banks (NatureServe 2020). This species is not known from the project area.
Creeping St. John's wort	*Hypericum adpressum*	S	No	Not known from the Big Piney Ranger District or the Ozark National Forest (ANHC 2018).
Earleaf false foxglove	*Agalinis auriculata*	S		Not known from the Big Piney Ranger District. Known to occur in Carroll, Hempstead, and Washington Counties (ANHC 2018). Habitat includes mesic to dry prairies, fallow fields, and borders of upland woods, glades, barrens, and other openings (NatureServe 2020).
Glade larkspur	*Delphimium treleasei*	S	No	Not known from the Big Piney Ranger District. Known to occur in eight counties: Baxter, Boone, Carroll, Fulton, Marion, Searcy, and Stone Counties (ANHC 2018). Occurs on limestone/dolomite barrens, slopes, glades, bluffs and rocky roadsides throughout the Ozark highlands (NatureServe 2020). No suitable habitat (e.g., glades) present.
Gulf pipewort	*Eriocaulon koernickianum*	S	No	Known from the Big Piney Ranger District in Johnson, Madison, and Pope Counties. Also known from Conway and Van Buren Counties (ANHC 2018). Habitat includes moist to wet open areas such as sandstone glade seeps, bogs, and prairie stream banks (NatureServe 2020). No suitable habitat (e.g., open seepy glade areas) present in the project area.
Largeleaf grass of Parnassus	*Parnassia grandifolia*	S	No	Distribution is not well known in Arkansas. Habitat includes swampy open meadows in small valleys fed by calcareous spring water, moist limestone ledges along streams, and moist crevices at the base of north-facing limestone bluffs (NatureServe 2020). Suitable habitat is not present in the project area, and this species was not found during field surveys in 2017.
Maple-leaved oak	*Quercus acerifolia*	S	No	Not known from the Big Piney Ranger District. Arkansas Endemic known only from Mt. Magazine Ranger District in Logan and Sebastian Counties and from the Ouachita National Forest in Montgomery and Polk Counties (Robison and Allen 1995, ANHC 2018).

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Moore's delphinium	*Delphinium newtonianum*	S	No	Known from the Big Piney Ranger District (ANHC 2018). Arkansas Endemic that is found in Montgomery, Newton, Pike, Polk, Pope, Searcy, and Van Buren Counties (ANHC 2018, Robison and Allen 1995) One population was known nearby in Johnson County, but it was last observed in 1954 (ANHC 2010). Suitable habitat includes rich mesic or dry-mesic forests in the Boston and Ouachita Mtns of Arkansas (NatureServe 2020). Suitable habitat does exist in the project area, but it was not found during field surveys in 2017.
Nuttall's cornsalad	*Valerianella nuttallii*	S	No	Not known from the Ozark National Forest (ANHC 2018). Habitat includes shale glades and prairies with shale substrates (NatureServe 2020). No suitable habitat (e.g., shale glades and prairies) present in the project area.
Open-ground draba	*Draba aprica*	S	No	Not known from the Big Piney Ranger District. In Arkansas, it is found in Faulkner, Garland, Hot Spring, Madison, Montgomery, Polk, Pope, Saline, and Stone Counties (ANHC 2018). In the Ozarks, this species occurs on dolomitic rocky glade/barren margins with very thin soils (NatureServe 2020). No suitable habitat present in the immediate project area, and this species was not found during 2017 field surveys.
Ouachita false indigo	*Amorpha ouachitensis*	S	No	Not known from the Big Piney Ranger District (ANHC 2018). Closest known occurrence is in Johnson County, but on the Pleasant Hill Ranger District. Suitable habitat includes clearings of rocky creeks, streams banks, rocky ridges, glades and dry, rocky sandstone slopes (NatureServe 2020); however, this species was not found during 2017 field surveys.
Ouachita Mtn. Goldenrod	*Solidago ouachitensis*	S	No	Known distribution does not include Big Piney Ranger District (ANHC 2018). Suitable habitat includes mesic, wooded, north-facing slopes of the Ouachita Mountains (NatureServe 2020). No suitable habitat present in immediate project area.
Ovate catchfly	*Silene ovata*	S	No	Known from the Big Piney Ranger District, in Van Buren County. (ANHC 2018). Found in rich woods, occasionally in forests with soil over calcareous rocks. Was not found during field surveys in 2017.
Ozark chinquapin	*Castanea pumila* var. *ozarkensis*	S	No	Several occurrences on the Big Piney Ranger District (ANHC 2018). Commonly found as stump sprouts and will continue to re-sprout as long as herbicide not used. Species was not identified in the project area during 2017 field surveys.
Ozark cornsalad	*Valerianella ozarkana*	S	No	Not known from the Big Piney Ranger District; closest known occurrence is in southern Johnson County (ANHC 2018). Suitable habitat includes rocky glades and open woods on calcareous soils. Habitat absent from project area, and this plant was not found during 2017 field surveys.

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Ozark least trillium	*Trillium pusillum* var. *ozarkanum*	S	No	Not known from Big Piney Ranger District. Found in Benton, Boone, Carroll, Madison, Montgomery, Newton, Polk, Pulaski, and Washington Counties (ANHC 2018). Suitable habitat includes dry to mesic oak-hickory upland woods with a partially open canopy (NatureServe 2020). Potential habitat does exist in the project area; however, the plant was not found during field surveys in 2017.
Ozark spiderwort	*Tradescantia ozarkana*	S	No	Known from the Big Piney Ranger District; closest known occurrences are ~14.0 miles northwest of the project area (ANHC 2018). Habitat includes steep, rocky, and wooded slopes, ravines, bases & lower slopes of bluffs, and dry to moist woodland ledges (NatureServe 2020). Suitable habitat is likely in the project area; however, the species was not found during 2017 field surveys.
Royal catchfly	*Silene regia*	S	No	Known occurrences in Benton, Boone, Carroll, Fulton, Hot Spring, Madison, Marion, Newton, Searcy, Sharp, and Stone Counties (ANHC 2018). Habitat includes open woodlands, rock outcrops, prairies and along roadsides (NatureServe 2020). No suitable habitat is present in the project area, and this plant species was not found during field surveys in 2017.
Southern lady's slipper	*Cypripedium kentuckiense*	S	No	Known from the Big Piney Ranger District. Several known occurrences in Johnson, Newton, and other counties (ANHC 2018). Habitat includes mesic, shaded area in mature floodplain forests, near streams and creeks. Suitable habitat exists in project area; however, this species was not identified during 2017 field surveys.

***Status:**
P = proposed for federal listing as threatened
E = federal endangered species
T = federal threatened species
S = Amended Regional Forester's Sensitive Species List (2017)

APPENDIX B: VASCULAR PLANT SURVEY RESULTS

Vascular plant surveys were conducted in March, April, and June of 2017 in the Ozark National Forest near the Gee Creek Bridge on State Highway 123 by ARDOT botanist, Kayti Ewing. Surveys identified 151 species, including the seventeen (11.3%) non-native species denoted with asterisks below. No plant species tracked by the ANHC were located in the project area, and no plant species listed as PETS by the US Forest Service were located in the project area.

Scientific Name	Common Name
Ferns – 4 species	
Adiantum pedatum	northern maidenhair fern
Asplenium platyneuron	ebony spleenwort
Cystopteris protrusa	southern bladder fern, southern fragile fern
Polystichum acrostichoides	Christmas fern
Forbs – 71 species	
Achillea millefolium	yarrow, common milfoil
Actaea pachypoda	doll's-eyes, white baneberry
Ambrosia artemisiifolia	common ragweed
Ambrosia trifida	giant ragweed
Anemone americana	round-lobe hepatica
Antennaria parlinii	pussytoes, ladies'-tobacco
Arabis sp.	rockcress
Arisaema triphyllum	Jack-in-the-pulpit, Indian-turnip
Asarum canadense	wild ginger
Asclepias quadrifolia	four-leaf milkweed
Boehmeria cylindrica	false nettle
Cardamine angustata	slender toothwort
Chaerophyllum tainturieri	wild chervil
Claytonia virginica	spring-beauty
Coreopsis tinctoria	Plains coreopsis, tickseed, calliopsis
Corydalis sp.	fumewort
Cynoglossum virginianum	wild comfrey
**Daucus carota*	Queen Anne's-lace, wild carrot
Desmodium rotundifolium	dollar-leaf, round-leaf tick-trefoil
Desmodium sp.	Tick trefoil
**Duchesnea indica*	Indian-strawberry
Echinacea pallida	pale purple coneflower
Epifagus virginiana	beechdrops
Erythronium albidum	white trout-lily, white dog-tooth-violet
Euphorbia sp.	spurge
Galium circaezans	wild licorice
Galium triflorum	sweet-scent bedstraw
Gamochaeta sp.	cudweed
Geranium dissectum	cut-leaf crane's-bill
Geum canadense	white avens
Goodyera pubescens	downy rattlesnake-plantain

Scientific Name	Common Name
Gratiola sp.	hedgehyssop
Helianthus divaricatus	woodland sunflower
Hypericum mutilum	dwarf St. John's-wort
Krigia biflora	two-flower dwarf-dandelion
Lactuca canadensis	wild lettuce
Lespedeza cuneata	sericea lespedeza
**Leucanthemum vulgare*	ox-eye daisy
Maianthemum racemosum	false Solomon's-seal, false spikenard
**Medicago lupulina*	black medick
Mitchella repens	partridge-berry
Monarda bradburiana	Bradbury's beebalm
Monotropa uniflora	Indian-pipe
Packera sp.	ragwort
Pedicularis canadensis	wood-betony, lousewort
**Perilla frutescens*	beefsteak-plant
Phlox pilosa	Ozark downy phlox
Plantago sp.	plantain
Podophyllum peltatum	May-apple, mandrake
Polygonatum biflorum	Solomon's-seal
**Potentilla recta*	sulphur cinquefoil, rough-fruit cinquefoil
Prenanthes sp.	prenanthes
Rudbeckia hirta	black-eyed Susan
**Rumex crispus*	curly dock, sour dock
Salvia lyrata	lyre-leaf sage, cancer-weed
Sanicula canadensis	Canadian black-snakeroot
Silene virginica	fire-pink
Spigelia marilandica	Indian-pink, pinkroot
Taenidia integerrima	yellow pimpernel
Thalictrum thalictroides	rue-anemone, windflower
Thaspium trifoliatum	meadow-parsnip
Tipularia discolor	crane-fly orchid
**Trifolium incarnatum*	crimson clover
**Trifolium pratense*	red clover
Trillium viridescens	green trillium
Triodanis perfoliata	small Venus'-looking-glass
Urtica chamaedryoides	stinging nettle
Valerianella radiata	cornsalad
**Verbascum thapsus*	woolly mullein
Vicia cf. caroliniana	Vetch
Viola pubescens	downy yellow violet, smooth yellow violet
Graminoids – 18 species	
Allium sp.	onion
**Avena sativa*	oats
Briza minor	little quaking grass

Scientific Name	Common Name
Carex bushii	Bush's sedge
Carex flaccosperma	blue sedge
Carex rosea	sedge
Carex sp.	Sedge
Chasmanthium latifolium	river-oats, inland sea-oats
Cyperus sp.	flatsedge
Danthonia spicata	poverty oat grass
Dichanthelium clandestinum	deer-tongue rosette grass, deer-tongue panic grass
Elymus hystrix	bottle-brush grass
Iris cristata	dwarf crested iris
Luzula sp.	wood rush
Melica mutica	two-flower melic
**Microstegium vimineum*	Japanese stilt grass, Nepalese brown-top
**Poa annua*	annual blue grass
**Schedonorus arundinaceus*	tall fescue
Vines and scrambling shrubs – 11 species	
Convolvulus sp.	bindweed
Dioscorea villosa	wild yam
Euonymus americanus	strawberry-bush, hearts-a-bursting-with-love
**Lonicera japonica*	Japanese honeysuckle
Parthenocissus quinquefolia	Virginia-creeper, woodbine
Rosa carolina	Carolina rose
**Rosa multiflora*	multiflora rose
Smilax rotundifolia	common greenbrier, horsebrier
Toxicodendron radicans	poison-ivy
Vitis cinerea	winter grape, downy grape, gray-bark grape
Vitis rotundifolia	muscadine
Shrubs – 12 species	
Alnus serrulata	alder, smooth alder, tag alder
Amorpha sp.	Lead plant
Asimina triloba	pawpaw
Azalea sp.	azalea
Callicarpa americana	American beauty-berry, French-mulberry
Corylus americana	hazelnut, American hazelnut
Hamamelis virginiana	American witch-hazel
Hypericum prolificum	shrubby St. John's-wort
Rhus glabra	smooth sumac
Sideroxylon lanuginosum	gum bumelia, chittamwood
Symphoricarpos orbiculatus	coral-berry
Vaccinium sp.	blueberry

Scientific Name	Common Name
Trees – 35 species	
Acer rubrum	swamp red maple
Acer saccharum	southern sugar maple
Carpinus caroliniana	musclewood, ironwood, American hornbeam
Carya alba	mockernut hickory
Carya texana	black hickory
Cercis canadensis	eastern redbud
Cornus florida	flowering dogwood
Dirca palustris	leatherwood
Fagus grandifolia	beech
Fraxinus americana	white ash
Fraxinus pennsylvanica	green ash
Gleditsia triacanthos	honey locust
Ilex decidua	deciduous holly, possumhaw
Juglans nigra	black walnut
Juniperus virginiana	eastern red-cedar, cedar
Liquidambar styraciflua	sweet-gum
Magnolia tripetala	umbrella magnolia, umbrella-tree
Nyssa sylvatica	black-gum
Ostrya virginiana	hop-hornbeam, ironwood
Pinus echinata	short-leaf pine, yellow pine
Platanus occidentalis	sycamore, plane-tree
Quercus alba	white oak
Quercus muehlenbergii	chinquapin oak, chestnut oak
Quercus pagoda	cherrybark oak
Quercus rubra	northern red oak
Quercus stellata	post oak
Quercus velutina	black oak
Robinia pseudoacacia	black locust
Salix caroliniana	Carolina willow, Ward's willow
Salix nigra	black willow
Sassafras albidum	sassafras
Styrax americanus	American snowbell, storax
Tilia americana	American basswood, linden
Vaccinium arboreum	farkleberry, sparkleberry
Viburnum rufidulum	rusty blackhaw, southern blackhaw

APPENDIX C: US FISH AND WILDLIFE SERVICE CONSULTATION

Re: [EXTERNAL] ArDOT job 080499 - Gee Creek Str. & Apprs. (S)

Lewis, Lindsey <lindsey_lewis@fws.gov>

Tue 2020-08-18 12:30

To: Ledvina, Joseph <Joseph.Ledvina@ardot.gov>

CAUTION: This email originated from outside of ARDOT. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Joe,

As stated in the Consistency Letter, "The Service concurs with these "NLAA" and "No Effect" determination(s) for the listed species identified. No further consultation for this project is required for these species. The verification letter confirms you may rely on effect determinations provided in the Arkansas Determination Key for project review and guidance for federally listed species to satisfy agency consultation requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.; ESA)."

"The Service has received your concurrence verification letter and request to verify that the Proposed Action may rely on the concurrence provided in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 et seq.). Based on the information you provided, you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, may affect, but is not likely to adversely affect (NLAA) Indiana Bat and Northern Long-Eared Bat. The Service verification letter confirms the concurrence that this action may rely on the PBO."

Please keep in mind that you must report any departures from the plans submitted; results of any surveys conducted; or any dead, injured, or sick listed bats that are found to this office. If this project is not completed within one year of this letter, you must update your determination and resubmit the required information.

The Service has no additional comments or concerns and agrees with the determinations and concurrences made through the Arkansas Dkey and Indiana Bat and Northern Long-eared Bat (PBO) Dkey.

Thanks,

Lindsey Lewis
Biologist

US Fish & Wildlife Service
Arkansas Field Office
110 South Amity Rd., Suite 300
Conway, Arkansas 72032

(501) 513-4489 - voice
(501) 513-4480 - fax
Lindsey_Lewis@fws.gov
http://www.fws.gov/arkansas-es/

From: Ledvina, Joseph <Joseph.Ledvina@ardot.gov>
Sent: Monday, August 17, 2020 4:06 PM
To: Lewis, Lindsey <lindsey_lewis@fws.gov>
Subject: [EXTERNAL] ArDOT job 080499 - Gee Creek Str. & Apprs. (S)

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Lindsey,

ARDOT proposes to replace the Highway 123 bridge over Gee Creek, in Johnson County (35.678179, -93.262010). The bridge has been reinforced in the past but numerous structural deficiencies remain and the bridge would continue to deteriorate if it remained in use. The bridge will be replaced with a 3-sided box culvert a few feet south-southeast of the existing bridge. Typical soil disturbance during construction may temporarily impair water quality, but these effects will be minimized with the use of sediment reduction best management practices (BMPs). Along with standard BMPs, we will include cave discovery and water pollution control special provisions in the contract. A Biological Evaluation (attached) has been completed with coordination from the USDA Forest Service.

The species list (attached) generated by IPaC includes ten threatened or endangered species: Gray Bat (*Myotis grisescens*), Indiana Bat (IBat, *Myotis sodalis*), Northern Long-eared Bat (NLEB, *Myotis septentrionalis*), Piping Plover (*Charadrius melodus*), Red Knot (*Calidris canutus rufa*), American Burying Beetle (*Nicrophorus americanus*), and Missouri Bladderpod (*Physaria filiformis*).

We request your concurrence with our determination that this project will have "**no effect**" on the Piping Plover, Red Knot, American Burying Beetle, and Missouri Bladderpod due to lack of habitat and distance from known populations.

Gray Bats have been documented a few miles away along Big Piney Creek, but have not been documented in the immediate vicinity of the project. We seek concurrence for our determination of "**may affect, but not likely to adversely affect**" for the Gray Bat. A bridge inspection (attached) found no evidence of bats using the bridge.

Following the Programmatic Biological Opinion, a determination of "**may affect, but not likely to adversely affect**" was reached for Indiana bat and/or NLEB (see attached consistency letter). We request your concurrence with our determination. Summer bat surveys were done 1.5 miles to the east, at Big Piney Creek, and 1.4 miles to the south-southwest, at Haw Creek (see attached survey results).

Regards,
Joe Ledvina

Joe Ledvina | **Botanist**
Arkansas **Department of Transportation**
Environmental Division | Natural Resources Section
☎: 501.569.2520 | ✉:Joseph.Ledvina@ardot.gov
http://ardot.gov/wildflower_program/wildflower.aspx

United States Department of the Interior

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In Reply Refer To: July 21, 2020
Consultation Code: 04ER1000-2020-SLI-0359
Event Code: 04ER1000-2020-E-03026
Project Name: 080499 Gee Creek Strs. & Apprs.

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies endangered, threatened, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). **This letter only provides an official species list and technical assistance; if you determine that listed species and/or designated critical habitat may be affected in any way by the proposed project, even if the effect is wholly beneficial, consultation with the Service will be necessary.**

If you determine that this project will have no effect on listed species and their habitat in any way, then you have completed Section 7 consultation with the Service and may use this letter in your project file or application.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found on our website.

Please visit our website at http://www.fws.gov/arkansas-es/IPaC/home.html for species-specific guidance to avoid and minimize adverse effects to federally endangered,

threatened, proposed, and candidate species. Our web site also contains additional information on species life history and habitat requirements that may be useful in project planning.

If your project involves in-stream construction activities, oil and natural gas infrastructure, road construction, transmission lines, or communication towers, please review our project specific guidance at http://www.fws.gov/arkansas-es/IPaC/ProjSpec.html.

The karst region of Arkansas is a unique region that covers the **northern third of Arkansas** and we have specific guidance to conserve sensitive cave-obligate and bat species. **Please visit http://www.fws.gov/arkansas-es/IPaC/Karst.html to determine if your project occurs in the karst region and to view karst specific-guidance.** Proper implementation and maintenance of best management practices specified in these guidance documents is necessary to avoid adverse effects to federally protected species and often avoids the more lengthy formal consultation process.

If your species list includes any mussels, Northern Long-eared Bat, Indiana Bat, Yellowcheek Darter, Red-cockaded Woodpecker, or American Burying Beetle, your project may require a presence/absence and/or habitat survey prior to commencing project activities. Please check the appropriate species-specific guidance on our website to determine if your project requires a survey. We strongly recommend that you contact the appropriate staff species lead biologist (see office directory or species page) prior to conducting presence/absence surveys to ensure the appropriate level of effort and methodology.

Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make “no effect” determinations. If you determine that your proposed action will have “no effect” on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally-listed threatened or endangered fish or wildlife species without the appropriate permit.

Through the consultation process, we will analyze information contained in a biological assessment that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a habitat conservation plan) is necessary to harm or harass federally listed threatened or endangered fish or wildlife species. In either case, there is no mechanism for authorizing incidental take “after-the-fact.” For more information regarding formal consultation and HCPs, please see the Service's Consultation Handbook and Habitat Conservation Plans at www.fws.gov/endangered/esa-library/index.html#consultations.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to

federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, **the accuracy of this species list should be verified after 90 days.** This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
(501) 513-4470

Project Summary

Consultation Code: 04ER1000-2020-SLI-0359

Event Code: 04ER1000-2020-E-03026

Project Name: 080499 Gee Creek Strs. & Apprs.

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Replacement of the bridge over Gee Creek on Highway 123 in the Big Piney Ranger District of the Ozark National Forest. The new structure with be a three-sided box culvert on a new alignment to the south of the existing bridge.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/35.67914255650004N93.26056521324644W

Counties: Johnson, AR

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	Proposed Threatened
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Insects

NAME	STATUS
American Burying Beetle *Nicrophorus americanus* Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/66	Endangered

Flowering Plants

NAME	STATUS
Missouri Bladderpod *Physaria filiformis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5361	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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http://www.fws.gov/arkansas-es

IPaC Record Locator: 990-22660201 July 21, 2020

Subject: Consistency letter for '080499 Gee Creek Strs. & Apprs.' for specified federally threatened and endangered species and designated critical habitat that may occur in your proposed project area consistent with the Arkansas Determination Key for project review and guidance for federally listed species (Arkansas Dkey).

Dear Joseph Ledvina:

The U.S. Fish and Wildlife Service (Service) received on **July 21, 2020** your effect determination(s) for the '080499 Gee Creek Strs. & Apprs.' (the Action) using the Arkansas DKey within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Based on your answers and the assistance in the Service's Arkansas DKey, you made the following effect determination(s) for the proposed Action:

Species	**Determination**
Endangered American Burying Beetle (*Nicrophorus americanus*)	NLAA
Proposed Threatened Eastern Black Rail (*Laterallus jamaicensis ssp. jamaicensis*)	No Effect
Threatened Red Knot (*Calidris canutus rufa*)	No Effect
Threatened Piping Plover (*Charadrius melodus*)	No Effect
Endangered Gray Bat (*Myotis grisescens*)	NLAA
Endangered Indiana Bat (*Myotis sodalis*)	May Affect
Threatened Northern Long-eared Bat (*Myotis septentrionalis*)	May Affect
Threatened Missouri bladderpod (*Physaria filiformis*)	NLAA

Status

Consultation with the Service is not complete. Further consultation or coordination with the Arkansas Ecological Services Office is necessary for those species with a determination of "may affect" listed above. Please contact our office at 501-513-4470, arkansas_es_clearance@fws.gov,

or your agency point of contact in the Arkansas Ecological Services Office to discuss methods to avoid or minimize potential adverse effects to those species.

The Service concurs with the NLAA determination(s) for the species listed above. Your agency has met consultation requirements by informing the Service of the "No Effect" determinations. No further consultation for this project is required for these species. This letter confirms you may rely on effect determinations provided in the Arkansas Determination Key for project review and guidance for federally listed species to satisfy agency consultation requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.; ESA).

The Service recommends that your agency contact the Arkansas Ecological Services Field Office or re-evaluate this key in IPaC if: 1) the scope, timing, duration, or location of the proposed project changes, 2) new information reveals the action may affect listed species or designated critical habitat; 4) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Arkansas Ecological Services Field Office should take place before project changes are final or resources committed.

FHWA projects should not use this key for Northern Long-eared Bat determinations. Please complete the FHWA, FRA, FTA Programmatic Consultation for Transportation Projects affecting NLEB or Indiana Bat Release date: December 2, 2019
The key is intended for projects funded or authorized by FHWA, FRA, or FTA, that may affect the endangered Indiana bat and/or the threatened northern long-eared bat, which requires consultation with the USFWS under Section 7 of the ESA.

Bald and Golden Eagle Protection Act: The following resources are provided to project proponents and consulting agencies as additional information. Bald and golden eagles are not included in this section 7(a)(2) consultation and this information does not constitute a determination of effects by the Service.

The Service developed the National Bald Eagle Management Guidelines to advise landowners, land managers, and others who share public and private lands with Bald Eagles when and under what circumstances the protective provisions of the BGEPA may apply to their activities. The guidelines should be consulted prior to conducting new or intermittent activity near an eagle nest. This document may be downloaded from the following site: https://www.fws.gov/southeast/our-services/permits/eagles/

To determine if your proposed activity is likely to take or disturb Bald Eagles, complete our step-by-step online self-certification process, which is located at https://www.fws.gov/southeast/our-services/eagle-technical-assistance/.

If the recommendations detailed in the National Bald Eagle Management Guidelines cannot be followed, you may apply for a permit to authorize removal or relocation of an eagle nest in certain instances. The application form is located at http://www.fws.gov/forms/3-200-72.pdf.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

080499 Gee Creek Strs. & Apprs.

2. Description

The following description was provided for the project '080499 Gee Creek Strs. & Apprs.':

> Replacement of the bridge over Gee Creek on Highway 123 in the Big Piney Ranger District of the Ozark National Forest. The new structure with be a three-sided box culvert on a new alignment to the south of the existing bridge.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/35.67914255650004N93.26056521324644W

Species Protection Measures

Qualification Interview

1. Have you made an effects determination of "no effect" for all species in the area of the project? A "no effect" determination means the project will have no beneficial effect, no short-term adverse effects, and no long-term adverse effects on any of the species on the IPaC-generated species list for the proposed project or those species habitat. A project with effects that cannot be meaningfully measured, detected or evaluated, effects that are extremely unlikely to occur, or entirely beneficial effects should not have a "no effect" determination. (If unsure, select "No").

   No

2. Is the action authorized, funded, or being carried out by a Federal agency?

   Yes

3. Choose the Federal agency you represent in this consultation with the U.S. Fish and Wildlife Service:

   d. Federal Highway Administration

4. Will project proponents follow Special Provisions for avoidance and minimization measures for listed species in Arkansas?

   Yes

5. [Semantic] Does the project intersect designated critical habitat for the Leopard Darter?

   Automatically answered
   No

6. [Semantic] Does the project intersect designated critical habitat for the Neosho Mucket?

   Automatically answered
   No

7. [Semantic] Does the project intersect designated critical habitat for Yellowcheek Darter?

   Automatically answered
   No

8. [Semantic] Does the project intersect designated critical habitat for Rabbitsfoot?

   Automatically answered
   No

9. [Semantic] Does the project intersect the American burying beetle consultation area ?

   Automatically answered
   Yes

10. Will the project involve 3.0 acres or greater of ground-disturbing activities (including, but not limited to grubbing, bulldozing, tree and shrub removal, disking/plowing, compaction by heavy machinery, timber harvest or timber stand improvement)?

    No

11. [Semantic] Does the project intersect the red-cockaded woodpecker AOI?

    Automatically answered
    No

12. [Semantic] Does the project intersect the Eastern black rail AOI?

    Automatically answered
    Yes

13. Will the project affect sand and gravel areas or shorelines along rivers, lakes, or reservoirs?

    No

14. Does the project take place in marshy or flooded open field habitat?

    No

15. [Semantic] Does the project intersect the red knot AOI?

    Automatically answered
    Yes

16. [Semantic (same answer as "8.1.3"] Will the project affect sand and gravel areas or shorelines along rivers, lakes, or reservoirs?

    Automatically answered
    No

17. [Semantic (same answer as "8.2"] Does the project take place in marshy or flooded open field habitat?

    Automatically answered
    No

18. [Semantic] Does the project intersect the Piping Plover AOI?

    Automatically answered
    Yes

19. [Semantic (same answer as "8.1.3 or 9.3"] Will the project affect sand and gravel areas or shorelines along rivers, lakes, or reservoirs?

    Automatically answered
    No

20. [Semantic] Does the project intersect the Whooping Crane AOI?

    Automatically answered

    No

21. [Semantic] Does the project intersect the interior least tern AOI?

    Automatically answered

    No

22. [Semantic] Does the project intersect the Gray Bat AOI?

    Automatically answered

    Yes

23. Does the project involve changes to an existing bridge or large culvert?

    Yes

24. Does the project involve changes to an existing bridge or large culvert?

    Yes

25. Were bats of any species noted on inspection?

    No

26. [Semantic] Does the project intersect the Ozark Big-eared Bat AOI?

    Automatically answered

    No

27. [Semantic] Does the project intersect the Indiana bat AOI?

    Automatically answered

    Yes

28. [Semantic] Does the project intersect the Northern Long-eared bat AOI?

    Automatically answered

    Yes

29. [Semantic] Does the project intersect the Benton County Cave Crayfish AOI?

    Automatically answered

    No

30. [Semantic] Does the project intersect the Hell Creek Cave Crayfish AOI?

    Automatically answered

    No

31. [Semantic] Does the project intersect the Ozark cavefish AOI?

    Automatically answered

    No

32. [Semantic] Does the project intersect the Missouri bladderpod AOI?

    Automatically answered

    Yes

33. [Semantic] Does the project intersect the Geocarpon AOI?

    Automatically answered

    No

34. [Semantic] Does the project intersect the running buffalo clover AOI?

    Automatically answered

    No

35. [Semantic] Does the project intersect the Pondberry AOI?

    Automatically answered

    No

Project Questionnaire

1. **If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.**

   1. Estimated total acres of forest conversion:

   1.4

2. 2. If known, estimated acres of forest conversion from April 1 to October 31

   1.4

3. 3. If known, estimated acres of forest conversion from June 1 to July 31

   0

4. **If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.**

   4. Estimated total acres of timber harvest

   0

5. 5. If known, estimated acres of timber harvest from April 1 to October 31

   0

6. 6. If known, estimated acres of timber harvest from June 1 to July 31

   0

7. **If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.**

   7. Estimated total acres of prescribed fire

   0

8. 8. If known, estimated acres of prescribed fire from April 1 to October 31

   0

9. 9. If known, estimated acres of prescribed fire from June 1 to July 31

   0

10. **If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.**

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

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IPaC Record Locator: 990-20003762 January 27, 2020

Subject: Consistency letter for the '080499 Gee Creek Strs. & Apprs.' project (TAILS 04ER1000-2020-R-0359) under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request to verify that the **080499 Gee Creek Strs. & Apprs.** (Proposed Action) may rely on the concurrence provided in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, and may affect, but is not likely to adversely affect the endangered Indiana bat (*Myotis sodalis*) and/or the threatened Northern long-eared bat (*Myotis septentrionalis*). Consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required.

This "may affect - not likely to adversely affect" determination becomes effective when the lead Federal action agency or designated non-federal representative requests the Service rely on the PBO to satisfy the agency's consultation requirements for this project.

Please provide this consistency letter to the lead Federal action agency or its designated non-federal representative with a request for review, and as the agency deems appropriate, to submit for concurrence verification through the IPaC system. The lead Federal action agency or designated non-federal representative should log into IPaC using their agency email account and click "Search by record locator". They will need to enter the record locator **990-20003762.**

For Proposed Actions that include bridge/structure removal, replacement, and/or maintenance activities: If your initial bridge/structure assessments failed to detect Indiana bats, but you later detect bats during construction, please submit the Post Assessment Discovery of Bats at Bridge/Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action may affect any other federally-listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please advise the lead Federal action agency accordingly.

The following species may occur in your project area and **are not** covered by this determination:

- American Burying Beetle, *Nicrophorus americanus* (Endangered)
- Eastern Black Rail, *Laterallus jamaicensis ssp. jamaicensis* (Proposed Threatened)
- Gray Bat, *Myotis grisescens* (Endangered)
- Missouri Bladderpod, *Physaria filiformis* (Threatened)
- Ozark Big-eared Bat, *Corynorhinus (=Plecotus) townsendii ingens* (Endangered)
- Piping Plover, *Charadrius melodus* (Threatened)
- Red Knot, *Calidris canutus rufa* (Threatened)
- Whooping Crane, *Grus americana* (Experimental Population, Non-Essential)

Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

Name

080499 Gee Creek Strs. & Apprs.

Description

Replacement of the bridge over Gee Creek on Highway 123 in the Big Piney Ranger District of the Ozark National Forest. The new structure with be a three-sided box culvert on a new alignment to the south of the existing bridge.

Determination Key Result

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the endangered Indiana bat and/or the threatened Northern long-eared bat, therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required. However, also based on your answers provided, this project may rely on the concurrence provided in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

Qualification Interview

1. Is the project within the range of the Indiana bat[1]?

   [1] See Indiana bat species profile

   Automatically answered
   Yes

2. Is the project within the range of the Northern long-eared bat[1]?

   [1] See Northern long-eared bat species profile

   Automatically answered
   Yes

3. Which Federal Agency is the lead for the action?

   A) Federal Highway Administration (FHWA)

4. Are *all* project activities limited to non-construction[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

   [1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

   No

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces[1]?

   [1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

   No

6. Does the project include *any* activities **within** 0.5 miles of a known Indiana bat and/or NLEB hibernaculum[1]?

   [1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

   No

7. Is the project located **within** a karst area?

   Yes

8. Will the project include *any* type of activity that could impact a **known** hibernaculum[1], or impact a karst feature (e.g., sinkhole, losing stream, or spring) that could result in effects to a **known** hibernaculum?

   [1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

   No

9. Is there *any* suitable[1] summer habitat for Indiana Bat or NLEB **within** the project action area[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   [2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the national consultation FAQs.

   Yes

10. Will the project remove *any* suitable summer habitat[1] and/or remove/trim any existing trees **within** suitable summer habitat?

    [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

    Yes

11. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail?

    No

12. Have presence/probable absence (P/A) summer surveys[1][2] been conducted[3][4] **within** the suitable habitat located within your project action area?

[1] See the Service's summer survey guidance for our current definitions of suitable habitat.

[2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

[3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

[4] Negative presence/probable absence survey results obtained using the summer survey guidance are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

Yes

SUBMITTED DOCUMENTS

- *080499_Big Piney and Gee Creek_Bat_survey_Report.pdf https://ecos.fws.gov/ipac/project/OIC7GH3WLJAQFMPZ2R5JOR6UKY/projectDocuments/19597337*

13. Did the presence/probable absence (P/A) summer surveys detect Indiana bats and/or NLEB[1]?

[1] P/A summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate home range) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

No

14. Were the P/A summer surveys conducted **within** the fall swarming/spring emergence range of a documented Indiana bat hibernaculum[1]?

[1] Contact the local Service Field Office for appropriate distance from hibernacula.

No

15. Does the project include activities **within documented Indiana bat habitat**[1][2]?

    [1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

    [2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

    No

16. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented Indiana bat** roosting/foraging habitat or travel corridors?

    Yes

17. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented Indiana bat** roosting/foraging habitat or travel corridors occur[1]?

    [1] Coordinate with the local Service Field Office for appropriate dates.

    C) During both the active and inactive seasons

18. When in the active season will the removal or trimming of habitat or trees occur **within** suitable but **undocumented Indiana bat** roosting/foraging habitat or travel corridors?

    C) During the active season both during and outside of the period May 1 to July 31

19. Will the removal or trimming of habitat or trees **within** suitable but **undocumented Indiana bat** roosting/foraging habitat or travel corridors that occurs between May 1 and July 31 be limited such that all trees can be visually assessed for use by bats?

    No

20. Does the project include activities **within documented NLEB habitat**[1][2]?

    [1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

    [2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

    No

21. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors?

    Yes

22. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors occur?

    C) During both the active and inactive seasons

23. Will *any* tree trimming or removal occur **within** 100 feet of existing road/rail surfaces?

    Yes

24. Will the tree removal alter *any* **documented** Indiana bat or NLEB roosts and/or alter any surrounding summer habitat **within** 0.25 mile of a documented roost?

    No

25. Will *any* tree trimming or removal occur **between** 100-300 feet of existing road/rail surfaces?

    Yes

26. Are *any* trees being removed **greater than** 9 inches diameter at breast height (dbh)?

    Yes

27. Are *all* trees that are being removed clearly demarcated?

    Yes

28. Will the removal of habitat or the removal/trimming of trees involve the use of **temporary** lighting?

    No

29. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing **permanent** lighting?

    No

30. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

    No

31. Does the project include slash pile burning?

    No

32. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

    Yes

33. Is there *any* suitable habitat[1] for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

    [1] See the Service's current summer survey guidance for our current definitions of suitable habitat.

    Yes

34. Has a bridge assessment[1] been conducted **within** the last 24 months[2] to determine if the bridge is being used by bats?

    [1] See User Guide Appendix D for bridge/structure assessment guidance

    [2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

    Yes

    SUBMITTED DOCUMENTS

    - *BridgeInspectionReport_2019-04-29.pdf https://ecos.fws.gov/ipac/project/OIC7GH3WLJAQFMPZ2R5JOR6UKY/projectDocuments/19597413*
    - *080499BatBridgeAssessment2020-01-07.pdf https://ecos.fws.gov/ipac/project/OIC7GH3WLJAQFMPZ2R5JOR6UKY/projectDocuments/19808287*

35. Did the bridge assessment detect *any* signs of Indiana bats and/or NLEBs roosting in/under the bridge (bats, guano, etc.)[1]?

    [1] If bridge assessment detects signs of *any* species of bats, coordination with the local FWS office is needed to identify potential threatened or endangered bat species. Additional studies may be undertaken to try to identify which bat species may be utilizing the bridge prior to allowing *any* work to proceed.

    Note: There is a small chance bridge assessments for bat occupancy do not detect bats. Should a small number of bats be observed roosting on a bridge just prior to or during construction, such that take is likely to occur or does occur in the form of harassment, injury or death, the PBO requires the action agency to report the take. Report all unanticipated take within 2 working days of the incident to the USFWS. Construction activities may continue without delay provided the take is reported to the USFWS and is limited to 5 bats per project.

    No

36. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing **permanent** lighting?

    No

37. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

    No

38. Will the project involve the use of **temporary** lighting *during* the active season?

    No

39. Will the project install new or replace existing **permanent** lighting?

    No

40. Does the project include percussives or other activities (**not including tree removal/ trimming or bridge/structure work**) that will increase noise levels above existing traffic/ background levels?

    No

41. Are *all* project activities that are **not associated with** habitat removal, tree removal/ trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives, limited to actions that DO NOT cause any additional stressors to the bat species?

    Examples: lining roadways, unlighted signage , rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

    Yes

42. Will the project raise the road profile **above the tree canopy**?

    No

43. Are the project activities that are not associated with habitat removal, tree removal/ trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives consistent with a No Effect determination in this key?

    Automatically answered

    Yes, other project activities are limited to actions that DO NOT cause any additional stressors to the bat species as described in the BA/BO

44. Is the location of this project consistent with a Not Likely to Adversely Affect determination in this key?

    Automatically answered

    Yes, because no bats were detected during presence/probable absence surveys conducted during the summer survey season and outside of the fall swarming/spring emergence periods. Additionally, all activities were at least 0.5 miles from any hibernaculum.

45. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

    Automatically answered

    Yes, because the bridge has been assessed using the criteria documented in the BA and no signs of bats were detected

46. **General AMM 1**

    Will the project ensure *all* operators, employees, and contractors working in areas of known or presumed bat habitat are aware of *all* FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable Avoidance and Minimization Measures?

    Yes

47. **Hibernacula AMM 1**
Will the project ensure that on-site personnel will use best management practices[1], secondary containment measures, or other standard spill prevention and countermeasures to avoid impacts to possible hibernacula?

[1] Coordinate with the appropriate Service Field Office on recommended best management practices for karst in your state.

Yes

48. **Hibernacula AMM 1**
Will the project ensure that, where practicable, a 300 foot buffer will be employed to separate fueling areas and other major containment risk activities from caves, sinkholes, losing streams, and springs in karst topography?

Yes

Project Questionnaire

1. Have you made a No Effect determination for *all* other species indicated on the FWS IPaC generated species list?

   No

2. Have you made a May Affect determination for *any* other species on the FWS IPaC generated species list?

   Yes

3. How many acres[1] of trees are proposed for removal between 0-100 feet of the existing road/rail surface?

   [1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   1.4

4. How many acres[1] of trees are proposed for removal between 100-300 feet of the existing road/rail surface?

   [1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0.3

5. Please describe the proposed bridge work:

   Replacement of the bridge of Highway 123 over Gee Creek with a three-sided box culvert on a new alignment to the south

6. Please state the timing of all proposed bridge work:
   during the active and inactive season

7. Please enter the date of the bridge assessment:
   January 7, 2020

Avoidance And Minimization Measures (AMMs)

This determination key result includes the committment to implement the following Avoidance and Minimization Measures (AMMs):

GENERAL AMM 1

Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

HIBERNACULA AMM 1

For projects located within karst areas, on-site personnel will use best management practices, secondary containment measures, or other standard spill prevention and countermeasures to avoid impacts to possible hibernacula. Where practicable, a 300 foot buffer will be employed to separate fueling areas and other major containment risk activities from caves, sinkholes, losing streams, and springs in karst topography.

Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat

This key was last updated in IPaC on December 02, 2019. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects. The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

COPPERHEAD
ENVIRONMENTAL CONSULTING

Indiana Bat and Northern Long-Eared Bat Mist-Net Survey of the Big Piney and Gee Creek Structures and Approaches Project, Johnson County, Arkansas.

ARDOT Job No. 080499

Prepared by:
Copperhead Environmental Consulting, Inc.
471 Main St.
P.O. Box 73
Paint Lick, KY 40461

For:
Arkansas Department of Transportation
10324 Interstate 30
P.O. Box 2261
Little Rock, AR 72203

2 August 2019

COPPERHEAD ENVIRONMENTAL CONSULTING, INC.
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PROJECT INTRODUCTION

Copperhead Environmental Consulting, Inc. (Copperhead) was contracted by Arkansas Department of Transportation (ARDOT) to conduct Indiana bat (*Myotis sodalis)* and northern long-eared bat (*Myotis septentrionalis*) presence/probable absence (P/A) surveys for the proposed Big Piney and Gee Creek Structures and Approaches Project (Figure 1). A Study Plan was submitted to the US Fish and Wildlife Service (USFWS) Arkansas Field Office on 24 May 2019 and concurrence was received on 29 May 2019. Surveys were conducted under USFWS Permit #TE94849B-1 and Arkansas Game & Fish Commission (AGFC) Scientific Permit #121120173.

METHODS

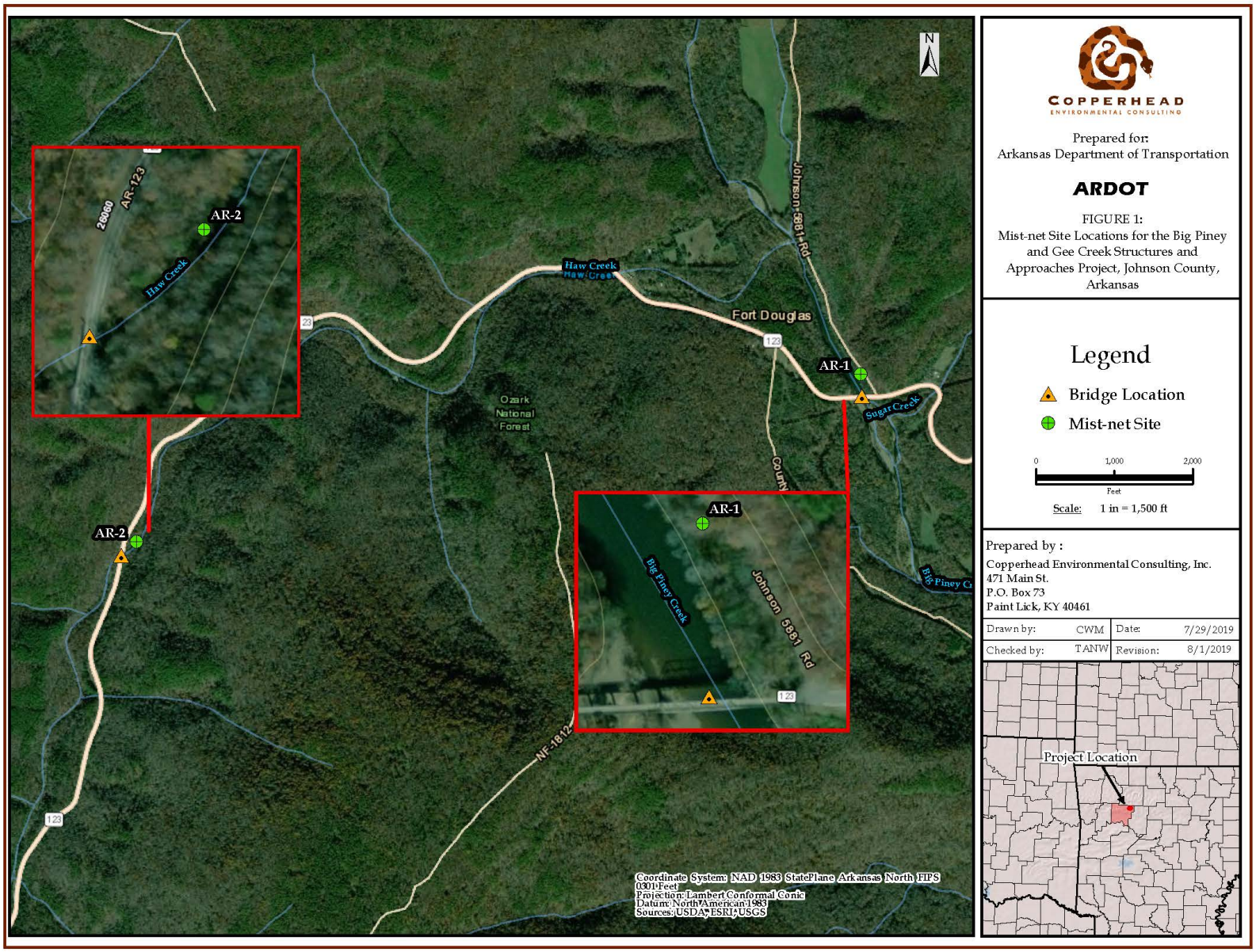
Site Selection/Mist-Netting

Mist-netting was implemented in accordance with USFWS "2019 *Range-wide Indiana Bat Summer Survey Guidelines*." One mist-net site was surveyed for the Big Piney Structure and one mist-net site was surveyed for the Gee Creek Structure (Table 1). Four net nights (nn) were completed at each structure based on the estimated forested impacts (< 1km). Mist-net site locations were selected after field reconnaissance of the project area and where habitat was best (Table 1 and Figure 1). Mist-net site photographs are provided in Appendix A.

Table 1. Mist-net locations for the Big Piney and Gee Creek Structures and Approaches Project, Johnson County, AR.

Site No.	Bridge Structure	Description	Dates (2019)	Latitude	Longitude
AR-1	Big Piney Creek	County Rd 5881 northeast of Hwy 123	9-10 July	35.67810	-93.23533
AR-2	Gee Creek	Haw Creek north of Hwy 123	11-12 July	35.67190	-93.26637

Mist-nets were set to maximize coverage of flight paths used by bats along suitable travel corridors or foraging areas. Placement of mist-nets was based on the extent of canopy cover, presence of an open flyway, and forest conditions near the site. Actual location and orientation of each net was determined in the field by a qualified biologist. Nets were deployed at sunset each night, left open for at least 5 hours, checked every 10 minutes, and disturbance near the nets was kept to a minimum. Weather data, including temperature, wind speed, and cloud cover was recorded for each site on an hourly basis to ensure compliance with the mist-netting guidelines (e.g., temperature during survey greater than 50°F).


N
AR-2
AR-123
26060
Haw Creek
AR-2
Haw Creek
Fort Douglas
Johnson 5881 Rd
AR-1
Sugar Creek
Ozark National Forest
County
AR-1
Big Piney Creek
Johnson 5881 Rd
NF-1812
123
Coordinate System: NAD 1983 StatePlane Arkansas North FIPS 0301 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS
COPPERHEAD
ENVIRONMENTAL CONSULTING
Prepared for:
Arkansas Department of Transportation
ARDOT
FIGURE 1:
Mist-net Site Locations for the Big Piney and Gee Creek Structures and Approaches Project, Johnson County, Arkansas
Legend
Bridge Location
Mist-net Site
0
1,000
2,000
Feet
Scale: 1 in = 1,500 ft
Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main St.
P.O. Box 73
Paint Lick, KY 40461
Drawn by: CWM
Date: 7/29/2019
Checked by: TANW
Revision: 8/1/2019
Project Location

Bats were live-caught and released unharmed near the point of capture. Biological and morphometric data (e.g., species, sex, age class, reproductive condition, mass, and forearm length) were recorded on data sheets for each individual captured. In addition, the height and the specific net set of capture are recorded for each bat. Processing of bats was completed within 30 minutes from the time a bat was removed from the net.

White-Nose Syndrome Protocol

In an effort to minimize the transmission of White-nose Syndrome (WNS) between captured bats, all netting and field activities followed the most recent guidelines established by USFWS. All hard, non-porous netting equipment was sanitized with Isopropyl alcohol wipes prior to arrival and after each survey night; all other equipment was submersed in hot water (131°F) for a minimum of 20 minutes. Individual bats were kept in unused paper bags while waiting for processing. Disposable latex gloves were worn over sanitized handling gloves and changed or sanitized following the handling of each bat. All non-disposable equipment (e.g., Pesola scales, rulers, calipers, etc.) coming into contact with bats was sanitized immediately following the handling of each bat. Bats were evaluated for potential WNS infection through wing scoring following the *"Wing-Damage Index Used for Characterizing Wing Condition of Bats Affected by White-nose Syndrome"* (Reichard and Kunz 2009).

RESULTS

Habitat

The Big Piney and Gee Creek Structures and Approaches are located within the Ozark National Forest. Habitat types that could be used by foraging and commuting bats, including forest gaps, wooded creek corridors and gravel roads were present near each structure. Land cover at the survey sites was optimal due to surrounding habitat being primarily forested with connectivity to adjacent forested habitat by forested streams and corridors. Forest structure was optimal due to the presence of mature trees and diverse age classes of trees with varying tree height and treefalls creating frequent openings and gaps that facilitate bat foraging. Dominate tree species near mist-net sites included white oak (*Quercus alba*), Eastern redbud (*Cercis canadensis*), pecan (*Carya illinoinensis*), and flowering dogwood (*Cornus florida*). Big Piney Creek, Gee Creek, Sugar Creek, and Haw Creek could provide drinking and foraging resources throughout the summer. Roosting habitat was available in the form of snags with sloughing bark or cavities that were 5-15" diameter at breast height.

The Big Piney Creek and Gee Creek structures were investigated for signs of bat use. The Gee Creek structure over Haw Creek does provide some suitable roosting habitat for bats due to the rough concrete underdeck and numerous cracks and crevices suitable for bats to roost in, however, the bridge structure is less than 10ft above the creek and has been overwhelmed by

nesting swallows. Due to the size of the Big Piney Creek structure and safety concerns, a thorough investigation of the bridge was not conducted. No bats of any species or sign of bats was identified roosting under areas of the bridges that were checked.

Mist-Net Survey

Mist-netting was conducted from 9 July – 12 July 2019 A total of 10 bats of three species were captured (Table 2). No Indiana or northern long-eared bats were captured.

Table 2. Summary of bat species captured by site for the proposed Big Piney and Gee Creek Structures and Approaches Project, Johnson County, AR, July 2019.

Species	Site AR-1		Site AR-2		Total
	Male	Female	Male	Female	
Eptesicus fuscus	1	1	0	0	2
Lasiurus borealis	0	0	2	2	4
Nycticeius humeralis	0	0	4	0	4
Total	1	1	6	2	10

Weather conditions during the surveys were within the parameters outlined in the USFWS survey guidance, including no rain or heavy winds and temperatures above 50ºF during the entire five-hour survey period. No deviations from the survey methodology occurred during the field survey. Captured bats were examined for signs of WNS by using the Reichard Wing-Damage Index (WDI). No major traumas (i.e., WDI > 1) were observed on captured bats.

CONCLUSIONS

The mist-net survey effort (4 nn at each bridge structure) was conducted under the appropriate weather conditions to determine P/A of Indiana and northern long-eared bats during the maternity season (USFWS 2019).

No Indiana or northern long-eared bats were captured during the survey, indicating these species are not likely present within the project area during the maternity season or are present in numbers too low to be detected by approved USFWS protocols.

LITERATURE CITED

Reichard, J. D. and T. H. Kunz. 2009. *White-nose syndrome inflicts lasting injuries to the wings of little brown myotis* (*Myotis lucifugus*). Acta Chiropterologica, 11(2) 457-464.

(USFWS) U.S. Fish and Wildlife Service. 2019. 2019 *Range-Wide Indiana Bat Summer Survey Guidelines*.

Appendix A: Mist-net Site Photographs

COPPERHEAD ENVIRONMENTAL CONSULTING	**Mist-Net Survey of the Big Piney and Gee Creek Structures and Approaches Project. Johnson County, AR. Photographic Record**	
ARDOT Job No.: 080499	Counties, State: Johnson County, AR	Client: ARDOT

Photo No.: AR-1, Net A	
Dates: 9-10 July 2019	
Location: Johnson Co., 35.67810, -93.23533	
Habitat: Corridor	
Description: CR-5881 northeast of Big Piney Creek	

Photo No.: AR-1, Net B	
Dates: 9-10 July 2019	
Location: Johnson Co., 35.67945, -93.23646	
Habitat: Corridor	
Description: CR-5881 northeast of Big Piney Creek	

Photo No.: AR-2, Net A	
Dates: 11-12 July 2019	
Location: Johnson Co., 35.67190, -93.26637	
Habitat: Creek	
Description: Haw Creek north of Hwy 123	

Photo No.: AR-2, Net B	
Dates: 11-12 July 2019	
Location: Johnson Co., 35.67215, -93.26627	
Habitat: Creek	
Description: Haw Creek north of Hwy 123	

Appendix B: Mist-net Data Sheets

Mist Netting Data Form 2017

Sheet____ of ____

Site No. AR-1 Project.Phase# 818.02 Project Name ARDOT Big Piney and Gee Creek Dates 09 July - 10 July 2019

Site Location CR-5881, Hagarville Habitat Type* Upland Forest

County Johnson State AR Permitee Nikki Davis Technician(s) Clellan McMurray

Lat/Lon or UTM (circle one): N/Easting 35.67810 W/Northing 093.23533 UTM Zone — Datum NAD 83

COPPERHEAD ENVIRONMENTAL CONSULTING

#	Date	Time	Species	Age	Sex	Repro	Mass (g)	RFA (mm)	Net	Height (m)	WDI	Band# Type____	Freq. ____	Comments
1	09 July	2106	EPFU	A	F	PL	17	50	A	2.5	—	—	—	—
2	09 July	2324	EPFU	A	M	NR	16	46	A	3	—	—	—	—
	10 July	NO	BATS											

Date	Moon%	Moon rise	Moon set	Sunrise	Sunset
09 July	47	1340	01:03	6:04	2032
10 July	58	1445	01:37	6:04	2031

Date	Time	Temp (°F)	Sky	Wind	Comments
09 July	2032	80	0	0	—
	2132	78	0	0	—
	2232	77	0	0	—
	2332	77	0	0	—
	0032	76	0	0	—
	0132	75	0	0	—
10 July	2031	73	1	0	—
	2131	72	1	0	—
	2231	71	1	0	—
	2331	71	0	0	—
	0031	70	0	0	—
	0131	70	0	0	—

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Species Abbreviations: *Corynorhinus rafinesquii* (CORA); *Corynorhinus t. virginianus* (COVI); *Eptesicus fuscus* (EPFU); *Lasiurus borealis* (LABO); *Lasiurus cinereus* (LACI); *Lasiurus seminolus* (LASE); *Lasionycteris noctivagans* (LANO); *Myotis austroriparius* (MYAU); *Myotis grisescens* (MYGR); *Myotis leibii* (MYLE); *Myotis lucifugus* (MYLU); *Myotis septentrionalis* (MYSE); *Myotis sodalis* (MYSO); *Nycticeius humeralis* (NYHU); *Perimyotis subflavus* (PESU); *Tadarida brasiliensis* (TABR)

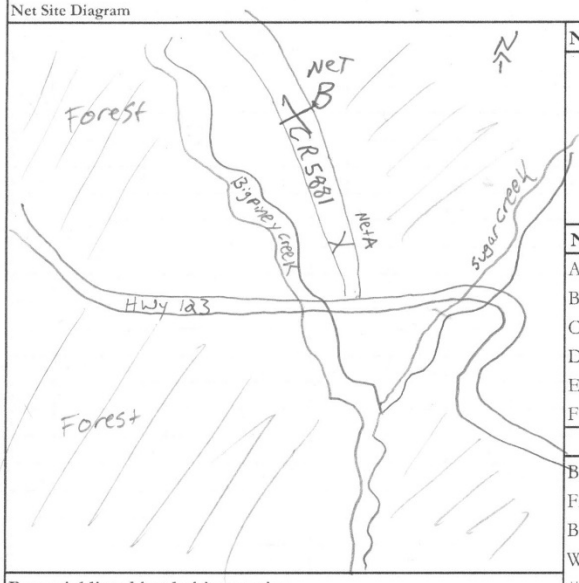
Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Testes Descended: TD; Non Repro: N; Unknown: U

*** Habitat Type:** Creek/riparian; Bottomland forest; Upland forest; Pond; Cave entrance; Mine portal; Bridge; Structure; Field edge; Open field; Other

Copperhead Consulting Ph:859-925-9012 Please return to: P.O. Box 73, Paint Lick, KY 40461

Site No. AR-1 Project.Phase# 818.02 Project Name ARDOT Big Piney and Gee Creek Dates 09 July - 10 July 2019

Net Site Diagram



Net height x net length (m)			Dates
A =	5.2	x 6m	09 July - 10 July
B =	5.2	x 6m	09 July - 10 July
C =		x	
D =		x	
E =		x	
F =		x	

Net Set GPS Location (UTM or Lat/Long)	
A =	35.67810 -093.23533
B =	35.67945 -093.23646
C =	
D =	
E =	
F =	

Transmitters			
Band#		Band#	
Freq.		Freq.	
Brand		Brand	
Weight		Weight	
#days		#days	

Net Set by Habitat						
Habitat	A	B	C	D	E	F
Corridor	X	X				
Road Rut						
Creek						
River						
Pond						
Forest Gap						
Cave						
Mine						
Tree						
Other: list						

Date	Time nets up	Time nets down
09 July	2032	0132
10 July	2031	0131

Dominant Vegetation

1. Quercus alba
2. Cercis canadensis
3. Carya illinoinensis
4. Cornus drummondii
5.
6.

Potential listed bat habitat at site:

2 **Roost habitat**: **1. Poor**: No or few snags >= ~5" DBH with sloughing bark or other usable roost features (cracks, crevices, etc) **2. Moderate**: Snags with sloughing bark or other roost features present ~5-15 inch DBH within 1000 feet of forested areas. **3. Optimal**: Snags with sloughing bark or other roost features present >~15 inch DBH within 1000 feet of forested areas.

3 **Water Resources**: **1. Poor**: bat drinking resources not present at the site. **2. Moderate**: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource. **3. Optimal**: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.

3 **Forest Structure**: (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging **2. Moderate**: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare. **3. Optimal**: Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.

3 **Land Cover**: **1. Poor**: Area surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
2. Moderate: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

Comments:

Mist Netting Data Form 2017

Sheet____ of ____

Site No. AR-2 Project.Phase# 818.02 Project Name ARDOT Big Piney and Beecreek Dates 11 July - 12 July 2019

Site Location Haw Creek, Hagarville Habitat Type* Creek/Riparian

County Johnson State AR Permitee Nikki Davis Technician(s) Clellan McMurray

Lat/Lon or UTM (circle one): N/Easting 35.67190 W/Northing -93.26637 UTM Zone — Datum NAD83

COPPERHEAD ENVIRONMENTAL CONSULTING

#	Date	Time	Species	Age	Sex	Repro	Mass (g)	RFA (mm)	Net	Height (m)	WDI	Band# Type	Freq.	Comments
1	11 July	2157	LABO	A	M	NR	14	40	A	1.5	—	—	—	—
2		2252	LABO	A	F	PL	15	42	B	2	—	—	—	—
3		2252	NYHU	A	M	NR	9.5	35	A	2	—	—	—	—
4		2252	LABO	A	F	PL	14	41	B	2.5	—	—	—	—
5		2252	NYHU	A	M	NR	9.5	35	B	3.0	—	—	—	—
6		2254	NYHU	A	M	NR	10	37	A	1.5	—	—	—	—
7	—	2254	LABO	A	M	NR	14	42	B	1.5	—	—	—	—
1	12 July	2109	NYHU	A	M	NR	9	35	B	1.5	—	—	—	—

Date	Moon%	Moon rise	Moon set	Sunrise	Sunset
11 July	69	1549	0211	0605	2031
12 July	85	1458	0247	0606	2030

Date	Time	Temp (°F)	Sky	Wind	Comments
11 July	2031	72	0	0	—
	2131	71	0	0	—
	2231	69	0	0	—
	2331	68	0	0	—
	0031	68	0	0	—
—	0131	67	0	0	—
12 July	2030	72	0	0	—
	2130	70	0	0	—
	2230	69	0	0	—
	2330	68	0	0	—
	0030	67	0	0	—
—	0130	66	0	0	—

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Species Abbreviations: *Corynorhinus rafinesquii* (CORA); *Corynorhinus t. virginianus* (COVI); *Eptesicus fuscus* (EPFU); *Lasiurus borealis* (LABO); *Lasiurus cinereus* (LACI); *Lasiurus seminolus* (LASE); *Lasionycteris noctivagans* (LANO); *Myotis austroriparius* (MYAU); *Myotis grisescens* (MYGR); *Myotis leibii* (MYLE); *Myotis lucifugus* (MYLU); *Myotis septentrionalis* (MYSE); *Myotis sodalis* (MYSO); *Nycticeius humeralis* (NYHU); *Perimyotis subflavus* (PESU); *Tadarida brasiliensis* (TABR)

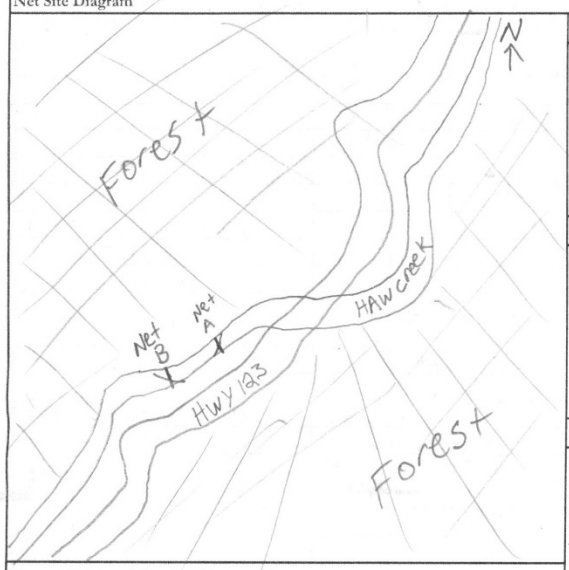
Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Testes Descended: TD; Non Repro: N; Unknown: U

*** Habitat Type:** Creek/riparian; Bottomland forest; Upland forest; Pond; Cave entrance; Mine portal; Bridge; Structure; Field edge; Open field; Other

Copperhead Consulting Ph:859-925-9012 Please return to: P.O. Box 73, Paint Lick, KY 40461

Site No. AR-2 Project.Phase# 818.02 Project Name ARDOT Big Piney and Gee Creek Dates 11July - 12July 2019

Net Site Diagram



Net height x net length (m)			Dates
A = 5.2	x	9m	11-12 July
B = 7.8	x	9m	11-12 July
C =	x		
D =	x		
E =	x		
F =	x		

Net Set GPS Location (UTM or Lat/Long)	
A = 35.67190	-93.26637
B = 35.67215	-93.26627
C =	
D =	
E =	
F =	

Transmitters			
Band#		Band#	
Freq.		Freq.	
Brand		Brand	
Weight		Weight	
#days		#days	

Net Set by Habitat						
Habitat	A	B	C	D	E	F
Corridor						
Road Rut						
Creek	X	X				
River						
Pond						
Forest Gap						
Cave						
Mine						
Tree						
Other: list						

Date	Time nets up	Time nets down
11July	2031	0031
12July	2030	0130

Dominant Vegetation

1. Quercus alba
2. Cercis canadensis
3. Carya illinoinensis
4. Cornus florida
5.
6.

Potential listed bat habitat at site:

2 **Roost habitat**: **1. Poor**: No or few snags >= ~5" DBH with sloughing bark or other usable roost features (cracks, crevices, etc) **2. Moderate**: Snags with sloughing bark or other roost features present ~5-15 inch DBH within 1000 feet of forested areas. **3. Optimal**: Snags with sloughing bark or other roost features present >~15 inch DBH within 1000 feet of forested areas.

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3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

Comments:

APPENDIX D: Bridge/Structure Assessment Form

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle one)
080499	Gee Creek	Jan. 7, 2020, 10am	Yes No

Route	County	Federal Structure ID
123	Johnson	M1864

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. ☐
Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges		Culverts/Other Structures		Summary Info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	None	Crevices, rough surfaces or imperfections in concrete		Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	✓	Spaces between walls, ceiling joists		Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	✓						
All expansion joints	✓						
Spaces between concrete end walls and the bridge deck	✓						

Last Revised May 31, 2017

Vertical surfaces on concrete I-beams	✓						

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure.

None

No evidence of bats

Visual (e.g. survey, thermal, emergent etc.)

- Live __number seen
- Dead __number seen

Photo documentation Y/N

Guano

Odor Y/N

Photo documentation Y/N

Staining definitively from bats

Photo documentation Y/N

Audible

Assessment Conducted By: Joe Ledvina	**Signature(s):** _____
District Environmental Use Only: Date Received by District Environmental Manager: _____	

DOT Bat Assessment Form Instructions

1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
3. Any questions should be directed to the District Environmental Manager.

Last Revised June 2017

Appendix E: Noise Impacts

NOISE ASSESSMENT REPORT
SCREENING LEVEL NOISE ANALYSIS
ARDOT JOB NUMBER 080499
GEE CREEK STR. & APPRS. (S)

Fundamentals of Sound and Noise

Noise is defined as unwanted or undesirable sound. The three basic parameters of how noise affects people are summarized below.

Intensity is determined by the level of sound expressed in units of decibels (dB). A 3 dB change in sound level is barely perceptible to most people in a common outdoor setting. However, a 5 dB increase presents a noticeable change and a 10 dB sound level increase is perceived to be twice as loud. Outdoor conversation at normal levels at a distance of 3 feet becomes difficult when the sound level exceeds the mid-60 dBA range.

Frequency is related to the tone or pitch of the sound. The amplification or attenuation of different frequencies of sound to correspond to the way the human ear "hears" these frequencies is referred to as "A-weighting." The A-weighted sound level in decibels is expressed as dBA.

Variation with time occurs because most noise fluctuates from moment to moment. A single level called the equivalent sound level (Leq) is used to compensate for this fluctuation. The Leq is a steady sound level containing the same amount of sound energy as the actual time-varying sound evaluated over the same time period. The L_{eq} averages the louder and quieter moments, but gives more weight to the louder moments.

For highway noise assessment purposes, Leq is typically evaluated over the worst 1-hour period and written as Leq(h). The Leq(h) commonly describes sound levels at locations of outdoor human use and activity, and reflects the conditions that will commonly produce the worst traffic noise (e.g., the highest traffic volumes traveling at the highest possible speeds).

Noise Impact and Abatement Criteria

Traffic noise impacts are determined by comparing design year Leq(h) values to: (1) a set of Noise Abatement Criteria (NAC) for different land use categories; and (2) existing Leq(h) values. A noise impact occurs when design year (future build) levels approach, meet, or exceed the NAC value or when a substantial increase in noise occurs. "Approach" is defined as a level within 1 dBA of the NAC value, and a substantial increase is defined as 10 dBA or greater than existing noise levels. For screening level noise analysis (screening analysis) purposes, the

ARDOT *Policy on Highway Traffic Noise Abatement* requires determining noise levels within 4 decibels of the NAC.

A *noise sensitive receptor* (receptor) is defined as a representative location of a noise sensitive area for various land uses. Most receptors associated with highway traffic noise analysis are categorized as NAC Activity Category B (residential) and C (e.g., trails and trail crossings, campgrounds, schools). Since the NAC for Activity Categories B and C is 67 dBA, noise impacts would occur at the approach level of 66 dBA. The screening analysis threshold would be 63 dBA.

Consideration of noise abatement measures is required when the NAC value is approached or exceeded, or when a substantial increase is predicted. Noise barriers (e.g., walls or berms) are the most common noise abatement measures.

Screening Level Noise Analysis

A screening analysis may be performed for projects that are unlikely to cause noise impacts and/or where noise abatement measures are likely to be unfeasible for engineering reasons. Factors common to these types of projects include low traffic volumes, slower speeds, the presence of few or no receptors, and the need for roadway access points (e.g., driveways, Main Street scenarios, etc.).

Screening analysis results represent a worst-case scenario with higher sound levels than would be expected in detailed modeling, and may be used to determine the need for detailed analysis if noise impacts are likely and the placement of noise barriers is feasible. It may also be used for projects that lack receptors in order to assess impacts on undeveloped or developing land.

The FHWA Traffic Noise Model Version 2.5 (TNM) software program is used to predict existing and future Leq(h) traffic noise levels. The TNM straight line model uses the existing year and design year traffic and roadway information. Receivers (discrete points modeled in the TNM program) are incrementally placed away from the roadway centerline to determine the distances to which noise impacts and noise levels within 4 dBA of the NAC extend. The model assumes that the roadway and receivers were located at the same elevation with no intervening barriers such as topography or dense vegetation.

Project Evaluation and Screening Analysis Results

The proposed project will replace the existing Hwy. 123 bridge over Gee Creek with a box culvert. Located in the Ozark National Forest, the entrance to the

Haw Creek Falls Campground is in the project footprint, while the campground and other recreational areas are located south-southeast of the roadway. The Ozark Highlands Trail also crosses Hwy. 123 at the campground entrance. These uses represent Activity Category C land uses.

Hwy. 123 has very low traffic volumes and only two potential receptors (trail crossing and campground/recreational area). Additionally, noise barriers would not be feasible due to both the terrain and established land uses requiring access points. A screening analysis was therefore considered appropriate for this project.

TNM modeling was completed using the existing year 2018 and design year 2038 (future build) traffic and roadway information. The purpose of the modeling was to determine the distances correlating to the 66 dBA noise impact level for Activity Category C receptors under existing and future build conditions. Receivers were incrementally extended from the centerline of Hwy. 123 to a maximum distance of 325 feet. The model calculation tables and input data are attached. The modeling results are summarized below.

Noise impacts were not predicted under existing and future build conditions. The noise level increases under future build conditions were less than 1 dB, which is undiscernible. A detailed noise analysis is not necessary for this project. Project construction operations typically increase noise levels. These increases would be temporary and have minimal to minor adverse effects on land uses and activities in the project area.

Table 1 presents the NAC values.

Table 1. Noise Abatement Criteria (NAC)

Activity Category	$L_{eq(h)}$ dBA	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B*	67	Exterior	Residential properties.
C*	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structure, radio stations, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structure, radio studios, recording studios, schools, and television studios.
E*	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D, or F.
F	---	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	---	Undeveloped lands that are not permitted.

* Includes undeveloped lands permitted for this activity category.

NOISE DATA WORKSHEET

Job No: 080499

Job Name: Gee Creek Str. & Apprs. (S)

Roadway Reference: Hwy. 123

County: Johnson

Design Year: 2038

Year(s) To Be Modeled: 2018 2038

Roadway Cross-Sections: 2 10' lanes; 2 2' shoulders total 24' wide

2018 EXISTING

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 55

Kfactor 11%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS/2	MT/2	HT/2
					10%	90%			
				0	0	0	0	0	0
2018	90	14%	10	9	0	1	4	0	1

NOISE DATA WORKSHEET

Job No: 080499

Job Name: Gee Creek Str. & Apprs. (S)

Roadway Reference: Hwy. 123

County: Johnson

Design Year: 2038

Year(s) To Be Modeled: 2018 2038

Roadway Cross-Sections: 2 11' lanes; 2 4' shoulders total 30' wide

2038 PROPOSED

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 55

Kfactor 11%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS/2	MT/2	HT/2
					10%	90%			
				0	0	0	0	0	0
2038	100	14%	11	9	0	1	5	0	1

RESULTS: SOUND LEVELS Job 080499

ARDOT
M.Pearson

10 March 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Job 080499
RUN: Existing 2018
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
20	1	1	0.0	56.1	66	56.1	10	----	56.1	0.0	8	-8.0
50	2	1	0.0	51.9	66	51.9	10	----	51.9	0.0	8	-8.0
75	3	1	0.0	49.9	66	49.9	10	----	49.9	0.0	8	-8.0
100	4	1	0.0	48.3	66	48.3	10	----	48.3	0.0	8	-8.0
125	5	1	0.0	46.0	66	46.0	10	----	46.0	0.0	8	-8.0
150	6	1	0.0	44.1	66	44.1	10	----	44.1	0.0	8	-8.0
175	7	1	0.0	42.5	66	42.5	10	----	42.5	0.0	8	-8.0
200	9	1	0.0	41.2	66	41.2	10	----	41.2	0.0	8	-8.0
225	10	1	0.0	40.0	66	40.0	10	----	40.0	0.0	8	-8.0
250	11	1	0.0	39.0	66	39.0	10	----	39.0	0.0	8	-8.0
275	12	1	0.0	38.1	66	38.1	10	----	38.1	0.0	8	-8.0
300	13	1	0.0	37.2	66	37.2	10	----	37.2	0.0	8	-8.0
325	14	1	0.0	36.5	66	36.5	10	----	36.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	13	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

RESULTS: SOUND LEVELS Job 080499

ARDOT
M.Pearson

10 March 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Job 080499
RUN: Proposed 2038
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
20	1	1	0.0	56.2	66	56.2	10	----	56.2	0.0	8	-8.0
50	2	1	0.0	51.9	66	51.9	10	----	51.9	0.0	8	-8.0
75	3	1	0.0	49.9	66	49.9	10	----	49.9	0.0	8	-8.0
100	4	1	0.0	48.5	66	48.5	10	----	48.5	0.0	8	-8.0
125	5	1	0.0	47.1	66	47.1	10	----	47.1	0.0	8	-8.0
150	6	1	0.0	45.1	66	45.1	10	----	45.1	0.0	8	-8.0
175	7	1	0.0	43.5	66	43.5	10	----	43.5	0.0	8	-8.0
200	9	1	0.0	42.0	66	42.0	10	----	42.0	0.0	8	-8.0
225	10	1	0.0	40.8	66	40.8	10	----	40.8	0.0	8	-8.0
250	11	1	0.0	39.7	66	39.7	10	----	39.7	0.0	8	-8.0
275	12	1	0.0	38.7	66	38.7	10	----	38.7	0.0	8	-8.0
300	13	1	0.0	37.8	66	37.8	10	----	37.8	0.0	8	-8.0
325	14	1	0.0	37.0	66	37.0	10	----	37.0	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	13	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0